School Shop

vol. XV no. 6
FEBRUARY 1956

Does Industrial Arts Have a Mission?
by Gordon O. Wilbur
Filtered Buffing Machine
by Henry Semran
Pocket-Size Radio
by George H. Francis
VIC Blazes the Trail
by Leland B. Luchsinger

Cover story: The Vocational Industrial Club of Texas (VIC) was organized to unite in a common bond students in vocational industrial classes in the high schools in the state. Shown in the picture is the orphanage party given by members of Laredo Metals 46 club. See page 20 for a story on the worthwhile activities of VIC.

THE MAGAZINE FOR TEACHERS OF INDUSTRIAL EDUCATION

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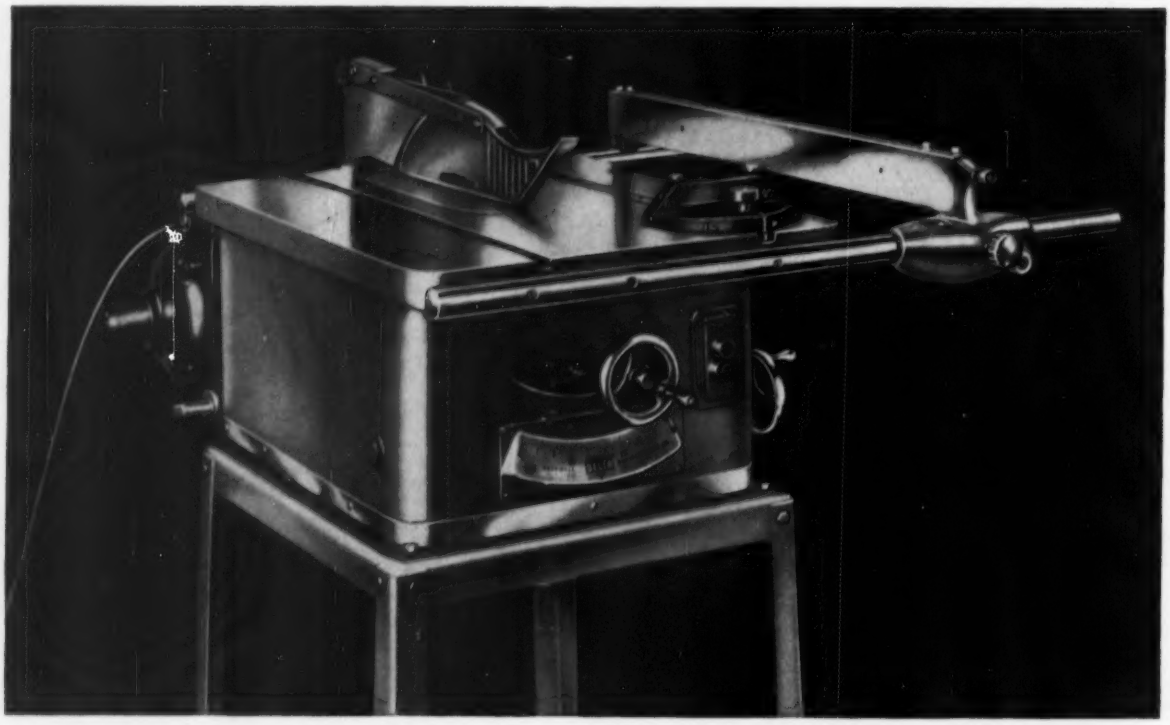
new DELTA

10" tilting arbor bench saw



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School Shop

THE MAGAZINE FOR TEACHERS OF INDUSTRIAL EDUCATION

Vol. XV, No. 6 **February 1956**

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Editorial and Business Office: 330 Thompson Street, Ann Arbor, Michigan.

Manuscript Information: Manuscripts are paid for at regular space rates and should be addressed to the Editor, School Shop, 330 Thompson Street, Ann Arbor, Michigan.

Subscription Rates: $3.00 a year; Canadian, $3.00 a year; foreign, $4.00 a year. Single copies, 40 cents each except April which is 60 cents. Special group rates for students in teacher-training institutions will be given on application.

Postal Information: Accepted as controlled circulation publication at Mount Morris, Illinois, and Ann Arbor, Michigan.

Advertising Sales Offices:

Chicago 4, Illinois—R. L. (Les) Gray, Western Manager, 53 West Jackson Blvd., Suite 740, telephone Harrison 7-9659.

New York 17, N. Y.—Macintyre-Simpson & Woods, 101 Park Ave., telephone Lexington 2-8998.

Ann Arbor, Mich.—Jerry Patterson, Mid-West Manager, 330 Thompson Street, telephone Normandy 8-7205.

Publication Information: Published monthly, September through June at Mount Morris, Illinois. Printed in the United States of America. Copyright 1956 by Lawrence W. Prakken.

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

An Outmoded Requirement

Somewhere in the provisions of the Smith-Hughes law we are told that the instruction given in a reimbursable class must be "of less than college grade." Presumably this statement was included to insure that the young tradesman received instruction that was definitely related to his trade. This provision was sound when the law was passed, but we are wondering if it applies to the same extent today in view of the tremendous technological advancement that has taken place in the last 40 years.

As time has passed, industry has gone through constant change. Measurement has become more precise and the many changes that have taken place have compelled the mechanic to become familiar with higher mathematics and with numerous scientific principles which were beyond the ken of the worker of yesteryear.

Today, when even children are playing with electric trains, earth-moving equipment, radios, electronic equipment, and space ships, much of the knowledge formerly acquired only in the classroom of our engineering colleges has become commonplace.

The machinist of yesterday was unfamiliar with jo-blocks and sine bars with the result that a knowledge of logarithms and the functions of angles was not considered an essential part of his related subject matter. Moreover, a knowledge of the characteristics of different metals, and their reaction to different treatments, was not as important as it is today.

The heat treatment of steel has developed into a science, and the use of precise measuring devices, involving a knowledge of higher mathematics, has become commonplace.

All of these factors, and others that might be mentioned, indicate that the related subject matter needed by the tradesman has expanded tremendously, and causes us to wonder where the dividing line lies between instruction of less than college grade and that which can be labeled college work.

It is customary in engineering colleges to provide courses in logarithms, the functions of angles, the principles of mechanics, and metallurgy. In view of this, are we justified in omitting these subjects from the instruction given to machinists, merely because they are of college grade and in spite of the fact that at least portions of these subjects are necessary in the training of a well-informed tradesman?

Similar illustrations might be given concerning other trades, all of which would seem to indicate that the expression "of less than college grade" has outlived its usefulness. If this provision were removed, then the sole basis for the selection of subject matter for trade training might be that it has significance in the trade to which it is related.

We have no fault to find with the provisions of the Smith-Hughes law. However, it would seem that the interpretation of these provisions should be made in terms of current practice and in keeping with modern technological advancements.—*T.D.*

The White House Conference on Education

In December the most highly publicized national meeting on education ever held in these United States was participated in at Washington when the White House Conference on Education brought 1800 delegates from all the states and territories to discuss education's achievements, shortcomings, and needs.

SCHOOL SHOP readers will look in vain for mention of industrial arts, industrial education, and trade and industrial education in the Conference's findings. They will be in no more wonderment than teachers of foreign languages or chemistry or any number of other subjects because the statement on "What Should Our Schools Accomplish?" failed to mention any of them. However, among the broad objectives, many could be given for partial fulfilment to shop teachers, for industrial-education courses hold many of the answers.

The real value of the Conference lies in the nation-wide attention it brought to education and the need for broadening the base for support of it. On that score the meeting was a huge success. Much good should come from this.—*L.W.P.*

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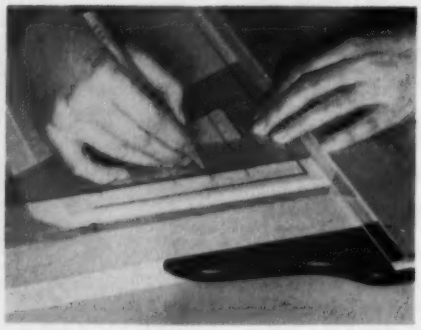

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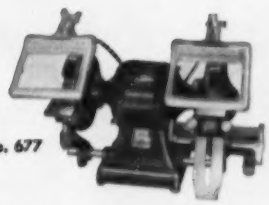

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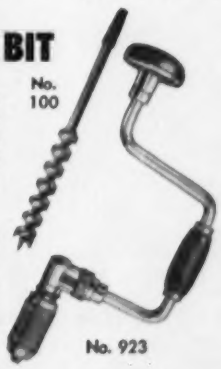

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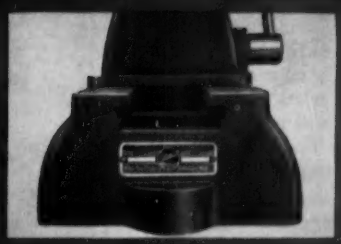

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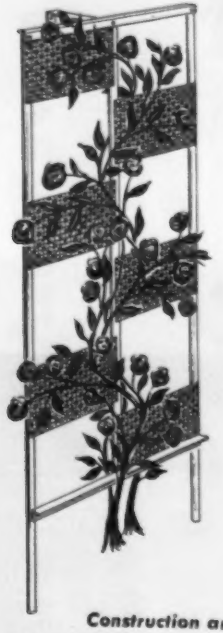
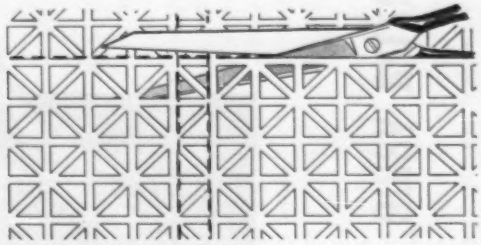


MATERIALS LIST—Two Trellises

1 pc.—3' x 3' Union Jack perforated sheet	2 pcs.—⅛" x ¾" bar, 6 feet long
2 pcs.—⅛" x ¾" x ¾" angle, 6 feet long	1 pkg.—3/32" dia. x ¼" aluminum rivets
4 pcs.—¾" O.D. tubing, 6 feet long	5 pkgs.—No. 6 x ½" self-tapping screws

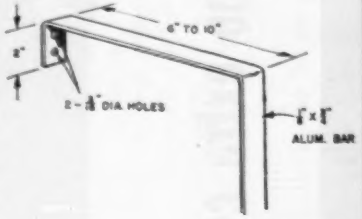
4—No. 10 x 1" round head wood screws



Construction and Installation

A Cut the perforated aluminum sheet into 12 equal pieces 8¼" x 11⅜". When cutting the sections, trim along the continuous bands to eliminate the many sharp and ragged edges that would result if you cut down the center. Ordinary household scissors will cut the sheet without damage to the blades. Approximately ½ inch of zigzag metal will be trimmed out between each rectangle.

B Make two bends at the top end of the ⅛" x ¾" center bar. Drill two 3/16-inch dia. holes in the 2-inch bend that attaches to your house, porch or garage.



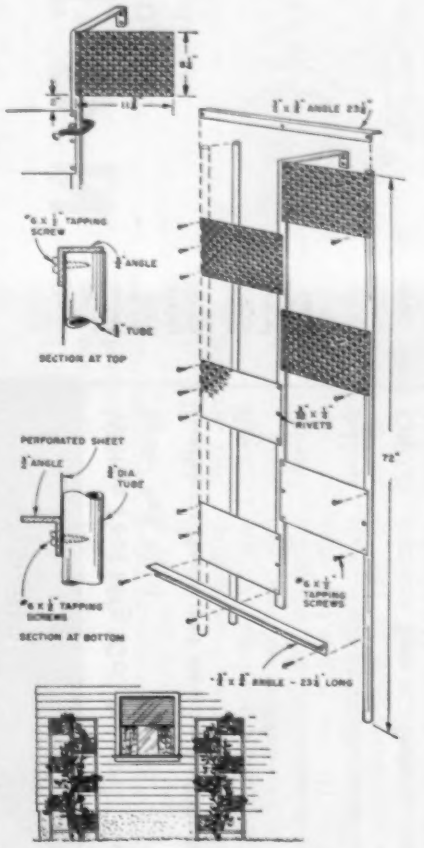
C Start assembling the trellis by marking a centerline down the face of the center bar. Butt the 8¼-inch side of one perforated rectangular sheet to this centerline beginning at the top, clamp in place and drill three 3/32-inch dia. holes through the edge of the sheet and the center bar. Rivet the rectangular sheet in place with manufactured heads facing outward.

D Allow a 2-inch space between the bottom of the first sheet and the top of the second staggered sheet. Clamp this sheet in place, drill and rivet as before. Continue staggering the sheets until six are in place, three on alternate sides of the center bar. NOTE: If the twin trellises are to stand closely together, make a left and right for better appearance as shown below. That is, start one trellis with the first rectangular sheet to the right of the centerline and the other trellis with the first rectangular sheet to the left of the centerline.

E Align the end of a 6-foot length of ¾" O.D. tubing even with the top edge of the perforated sheet with the outer edge overlapping the tubing centerline about ⅛ inch. Drill ⅛-inch dia. hole at the center of the sheet and into the tubing. Fasten the sheet to the tubing with one No. 6 x ½-inch self-tapping screw. Align the tubing with the edge of the lower rectangular sheet, drill and screw in center only. Fasten the center rectangular sheets with one screw in the same way.

F Cut the ⅛" x ¾" x ¾" angles 23¼ inches long. Fasten the top angle with its flange down across the upper end of one side of the tube and the center bar with No. 6 x ½-inch self-tapping screws. Assemble the ¾-inch dia. tubing to form the opposite edge of the trellis. Fasten the tube to the angle at the top and the center of the lower rectangular sheet first. Fasten the lower angle in place with self-tapping screws. Along both sides, add self-tapping screws at the top and bottom corners of each rectangular sheet. Rivet the top and bottom angles to the perforated sheets.

G Install each trellis by pushing the ¾-inch tubing sides into the ground. Screw the flange of the center bar to the side of a house, porch or garage. If desired, trellises may be given a coat of paste wax or clear lacquer to preserve the aluminum's original luster.



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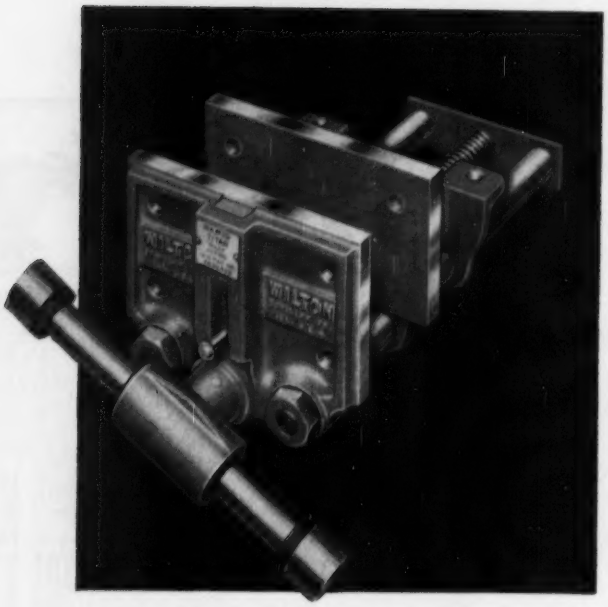

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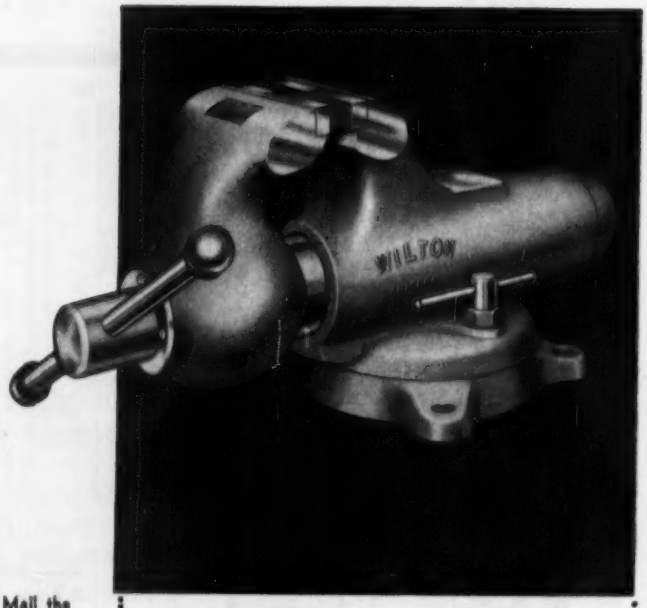

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What is your answer to the question:

Does Industrial Arts Have a Mission?

By Gordon O. Wilber

Director of Industrial Arts, State Teachers College, Oswego, New York

RECENTLY an industrial-arts teacher was overheard discussing with a layman the purposes of industrial arts in the local high school. In effect, the layman was asking, "What is the mission of industrial arts? What is it trying to do?" This is a question which every industrial-arts teacher is required to answer frequently, and hence is worthy of study and analysis. Each will answer the question in terms of his own background and experience, but the following is presented as one point of view on the subject.

The question may be asked, "Does industrial arts have any specific and different mission than other subjects?" "Is there anything unique about this subject or type of work?" The dictionary defines a mission as "that which one is destined or fitted to do." Defined in this way, industrial arts does appear to have a mission—in fact it has several. What then are some of the things that industrial arts is especially destined and fitted to do? Without attempting to be exhaustive, several which seem to be important may be pointed out. They are in addition to the generally accepted purpose of orienting youth to an industrial and technological society.

Industrial Arts for Fun

First, industrial-arts has a mission to bring to boys and girls a new experience in the field of recreation. For too long industrial-arts teachers have been unwilling to come out and admit plainly that one of the most important contributions their work can make to the development of boys and girls lies in the pleasure derived from constructive manipulative activities. This contribution has been disguised under such names as avocational and leisure-time activities. The time is now here when these disguises should be thrown aside and a clear statement of the value of industrial-arts work as pure recreation should be made. Nor should the profession feel that because outcomes are purely recreational they are thereby unimportant. In most cases close friends are chosen on the basis of what they do by way of recreational activities rather than their occupations. During the past few years there have been many reports concerning the movie actor, the doctor, or the lawyer who has a home workshop in his cellar or garage to which he repairs in his free time. Not that he needs the table or the whatnot that he makes but rather for the relaxation and pleasure he experiences from working with tools and materials. Boys and girls can experience this same pleasure in their industrial-arts work, given the opportunity.

If this mission is to be accomplished however, one must look critically at his offerings and methods. Not all boys and girls enjoy doing the same kind of work. Some like to work in wood, some in metal, some in plastics, and others in clay. If there is real interest in trying to find out where the interests of children lie, a wide choice of media must be made available. It seems clear, also, that one must approach teaching from a different point of view. Processes and operations become but means to an end and not an end in themselves. If the teacher can bring boys and girls to a point where they will understand that he is primarily interested in helping them to enjoy working with tools and materials—in helping them to achieve the results that *they* want, then there should be no difficulty in guiding them to a mastery of such skills as are necessary. In fact, the development of these skills will come in spite of the teacher. It is interesting to note how skillful a boy will become in the building of a model plane when he really wants to build one that will fly. If this same enthusiasm can be harnessed in shops and laboratories there will never be need to check students off on a progress chart to make sure that all of the processes and operations are covered.

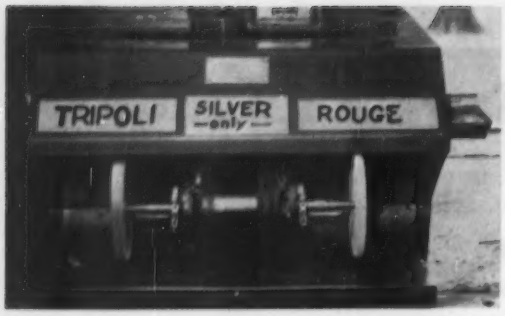
Does this mission seem impossible of achievement? There is clear evidence that it isn't. There is a challenge for each and every teacher who has the responsibility for teaching a class of boys and girls to try honestly for just one week to convince his students that their work can be fun. Forget about processes and operations and try to help each student to get a "kick" out of what he is doing. The writer is convinced that if teachers really give this suggestion an honest trial that they would never go back to the humdrum practice of making projects because they teach this or that "important process."

A Chance for Success

But perhaps as important or even more important is the psychological mission of industrial arts. When industrial arts (or manual training, as it was then called) was first introduced as a school subject, educators were thinking in terms of faculty psychology, and hence it was natural that it should be justified on the basis of "training the hand and eye." Since that time, the point of view has gradually changed as the field of psychological research has developed more adequate frames of reference. The modern tendency is to point to the importance of understanding the child as he sees himself rather than as others see him. It is becoming more and more clear that almost all behavior is the result of the individual's efforts to maintain and enhance his selfesteem. In order that this selfesteem may be maintained, it is necessary for every individual to have satisfying and successful experiences. Only in this way can normal development be assured. A boy or girl who is completely blocked in this respect inevitably turns to unapproved methods to draw attention to himself and to secure the selfesteem which he cannot get through normal behavior.

When industrial-arts teachers realize

(*Continued on page* 22)



This project was designed so that all blondes would not become redheads

Filtered Buffing Machine

By Henry Semran

The late Mr. Semran was General Metals Instructor Monroe, Michigan, High School

NECESSITY was the cause of creating a filtered buffing machine for the silvercraft classes at our high school. The buffing machine in use caused the benches and equipment to get red with rouge. The blonde girls always left the classroom as redheads. Of course, clothing suffered, too. Something had to be done!

In my first-year general-metals class was a tenth-grade superior student James Conrad. This student found the class work too easy and finished the required work way ahead of the class. He was interested in a buffer with filters I had designed one day after school. So we discussed building it. Many detailed sketches were drawn full size on brown wrapping paper. After planning the project together there was little for me to do, once the project was under way, except for an occasional decision.

The project took a little over 50 class hours plus a few hours after school for painting. The student learned more from this one project then he would have learned by doing "busy work." He used some equipment that he would not ordinarily use. He did drawings, visualizing the project in its various parts. He did cutting, bending, riveting, tap and die threading, drilling by hand, drill press, and electric hand drill, to mention only a few of the learning processes.

The boy gained the satisfaction of having done a project well, as well as making something that would benefit his fellow classmates. Above all, he received proper recognition for his efforts, for he was honored with a story and picture of the project in the high-school paper, and the project was exhibited at the state industrial-arts convention.

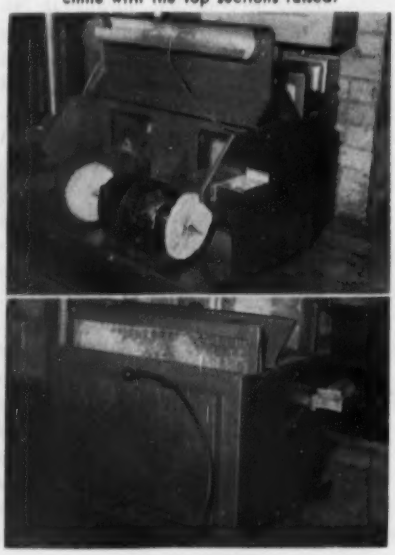
The material selected for the frame of the buffer was 16-gage black annealed sheet steel. In making the bottom, shown in Fig. 4, the inside borders of the ends were bent up first at right angles so there would be room to bend the front and back up in the 24" brake. The outside 1" borders were bent up as far as they could be on the brake and hammered down the rest of the way. The bend is shown in the cutaway detail at the bottom of Fig. 1. The corners were then leaded in with solder.

On the under side, a 3/16" hole was drilled in the center of each mitered joint. To this was bolted a round rubber chair-leg guard. These rubber guards were ground down a little in size, a hole was drilled in the center of each, and they were bolted on upside down. It is surprising how quiet this makes the machine run.

The layout and measurements for the shell for the ends and back are shown in Fig. 3. Note the ½" single hem on the front edge is bent inward. After the shell has been bent on the dotted lines, it is then drilled and bolted to the base from the sides and back.

The top is made in three pieces. The front piece is 9¼" x 25". There is a ½" border around the two ends and the front edge. This border makes a single hem for the front and lap edges on both ends. The middle section of the top is 6" x 25" in size. A ½" right angle border on both ends fits over the sides of the shell. The back section of the top is 6½" x 25" in size. After the joints are cut, a ½" border is bent at right angles. A piano hinge, cut into two 24" lengths and riveted in place between the three sections allows the front and back sections of the top to open up.

Front and rear views of the filtered buffing machine with the top sections raised.



The front panel is 15" x 25". After the corner joints and the openings for the two screen grills are cut out, a ½" border on each end is bent at right angles and the top 1" border is bent in the same direction. The bottom is laid over a 3½" pipe and hammered to the necessary curved contour in the opposite direction. In addition to drilling holes in the ends and bottom to fasten the panel to the shell, a ½" hole is drilled in the upper right hand corner for the lamp cord. The grill for the panel is made of ¼" mesh, 9" x 11½". This is bordered by a 1" hem made of 2" wide galvanized sheetmetal.

The light shade is made of 20-gage aluminum, 5" x 20". A ⅜" hole is drilled in the center, then it is rolled in a slip roller to 2¼" diameter. A bracket is made out of 16-gage sheetmetal, 2" x 3½". This is bent at right angles on the 2" mark. A ⅜" hole is drilled ¾" from the end of the 2" end in the center. On the other half, four ⅛" holes are drilled inside each corner and riveted to the center of the front of the top as shown in Fig. 2. Three No. 8-1" pipe nipples are fastened into a No. 8 pipe joint "T". On the opposite end of the "T" two light sockets are joint fastened. The center of the "T" joint is fastened to the hole in the center of the shade.

The back baffle is made of 16-gage sheetmetal, 11" x 24". Two 1" borders are scribed at each end. The 2" borders are bent at right angles first and then the 1" borders are bent in the opposite

direction. The baffle is fastened to the back, 2" from the top.

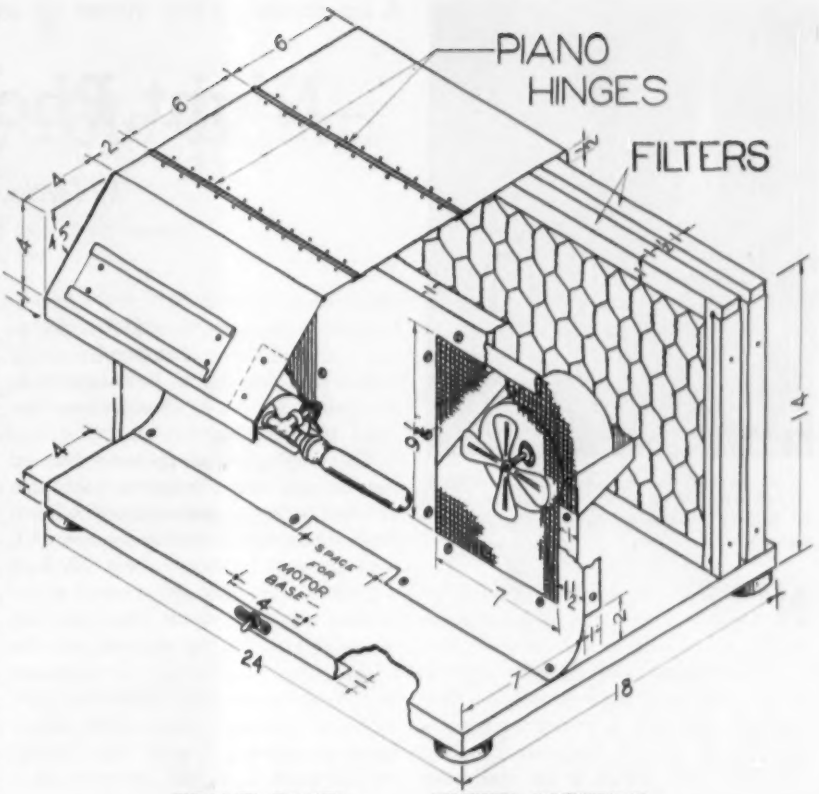
The filters are made of 3" wide strips of 24-gage galvanized metal bent into 1" channels. Four lengths 15⅞" long are needed for the ends and four pieces 23¾" long for the top and bottoms. On each end of the short pieces four 1" squares are cut out, leaving a 1" square tab in the center of the ends. These bend in. The top and bottom channels rest on top of the tabs, but inside the sides of the end channels. These corners are fastened with either rivets or flat-head metal screws, after a blanket of sheet spun glass or glass wool 1" thick is covered on each side with chicken wire.

The filters slide in channels on each side. These channels are riveted to the sides as shown in Fig. 2. The filter slides are made of 2" x 12½" 24-gage galvanized sheetmetal. The channels are made about 1 1/16" wide so that the filters will slide in them easily.

The ventilating fans are electric motor fans. We used government surplus fans. The fan blades were made of 4" copper discs. Some kind of brackets can be devised to hold the fan motors against the back of the front panel. We used 16-gage sheetmetal because it was easier to bend and drill. There should also be a vertical bracket which fastens to the base to keep the motors from sagging. These lateral motor brackets are fastened on the same bolts as the grill.

The buffing motor is bolted down with the base of the motor even with the front edge of the bottom of the buffing machine. A ½" hole is drilled in the center of the front edge of the bottom for a single- or double-pole midget toggle switch.

The electrical wiring is done with good heavy-duty rubber covered stranded wire, 14 gage. The two long 25-watt lamps, the two ventilating motors, and the buffing motor are all wired in parallel and the switch in series with the circuit. ★



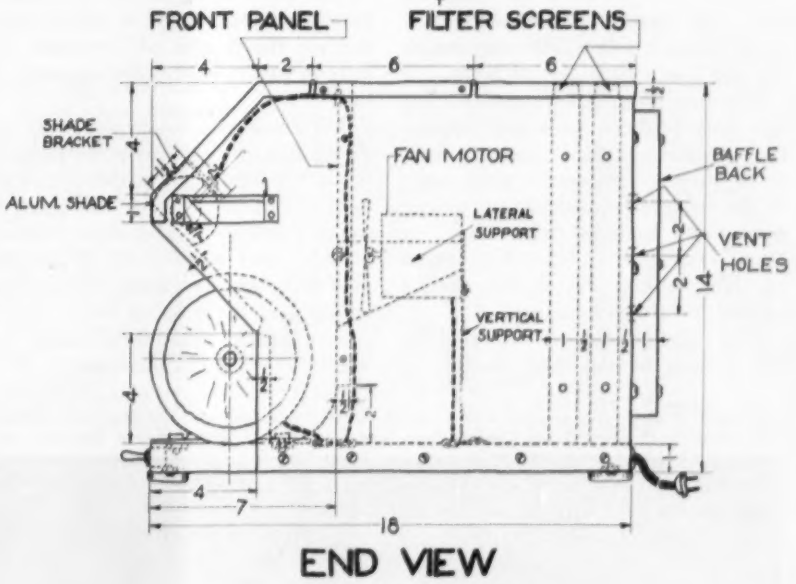
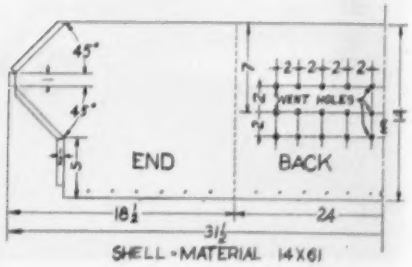
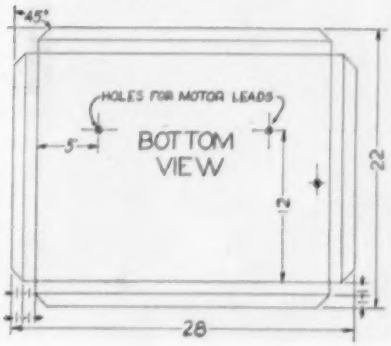


Fig. 1 (top) and Fig. 2 (bottom)

Fig. 3 (left) and Fig. 4 (right)





An illuminated church steeple and a lighted window make an interesting composition. Super XX film was used in a Brownie Reflex Camera. Exposure, 1½ minutes.

A fascinating vista opens up after sundown in

Night Photography

by Cortland C. Doan

Lincoln High School, San Diego, California

NIGHT photography with existing light (a long name meaning without the aid of a flash) can be one of the most fascinating and versatile aspects of the photo arts. Many people feel that night photography is something requiring a great deal of equipment, knowledge, and skill, which is not really the case. Any student can take acceptable night pictures with a little experimenting and a minimum of equipment.

The only thing that is necessary for this work is the camera and contrary to a popular notion, it does not have to be an expensive one. A great many of the inexpensive cameras on today's market are equipped with "time" or "bulb" exposure settings. With either of these settings the shutter can be opened for a time exposure.

Two types of cameras were used for the pictures on this page, a Brownie Reflex (cost, less than $10) and a Speed Graphic (cost, more than $300). When you compare these photographs you'll realize that it is nice to have expensive equipment, but not an absolute must for night photography.

When using an inexpensive camera keep in mind that you can vary the type of film for the job you want to do. Most fixed shutter-type cameras require film with a speed index of about 50. For night work, this slow speed would make a time exposure quite long. But by changing film, you can shorten your exposure time, eliminating, to a certain degree, the problem of movement such as people passing in front of the object being photographed, or a ship rocking on the water. Load the camera with a film with a speed index of 100 or more and cut the chances of movement exactly in half by cutting the exposure in half.

The change to a faster film might indicate a grain problem in the finished print, but this is not necessarily so as most of the picture area will print to the dark end of the gray scale. Because of this, many times grain is invisible even with very high-speed film and an enlargement up to 11″ x 14″.

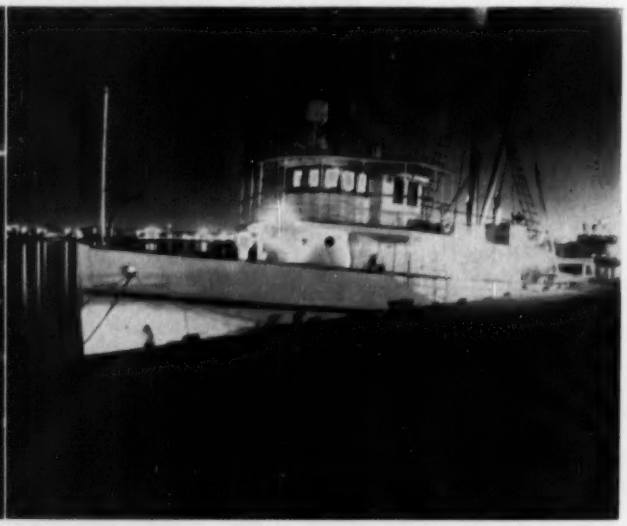
An expensive tripod is, of course, the ideal way to keep a camera steady. However, anything that will hold the camera or any item that it can be rested on will eliminate this piece of equipment.

Exposure times will present a problem to beginning students. There seems to be no set rule for determining the exposure of a night shot. If a meter reading can be obtained, all well and good, but this is very seldom possible. The best method to follow is to take a complete roll at various exposure times, keeping track of how many seconds or minutes were given to each frame. Also keep in mind the approximate amount of light that each shot had. When the roll is developed and the results viewed, some pretty fair calculations can be made as to exposure times.

Night subjects can be made into fascinating compositions. Your own town offers a wide variety of possible shots . . . train stations, air terminals, amusement parks, docks, city streets, panoramic views from hilltops . . . go out and look for them. Students, of course, will have failures in night pictures as in any type of photography, but one good shot will make up for a great many poor ones.

Try this as a project for a few of your advanced students. When you see the results you will probably include the entire class. ★

San Diego at night photographed with a Speed Graphic. Exposure was one minute at f5.6 and Super Panchro Press Type B was used. Right, another night shot, a tuna clipper at anchor. Royal Pan film was used in a Speed Graphic and the lens setting was f8. Exposure, 1 minute.

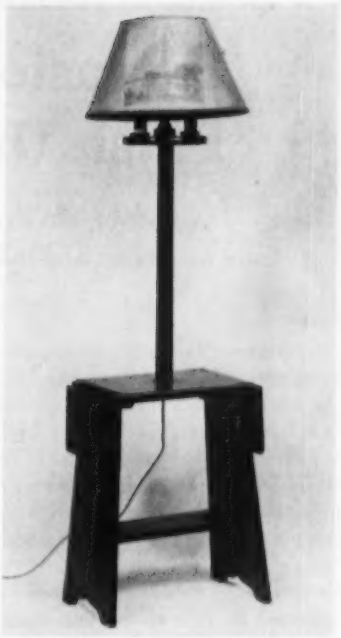


Many learning processes are involved in making this

Drop-Leaf Table Lamp

By Harold V. Johnson

Canton, Illinois, High School



INTERIOR decorating today demands a liberal supply of lamps of various types and designs in the modern home. Since lamps which take their motive and contours from our Puritan forefathers are always in good taste, your students will enjoy making and taking home this drop-leaf table lamp.

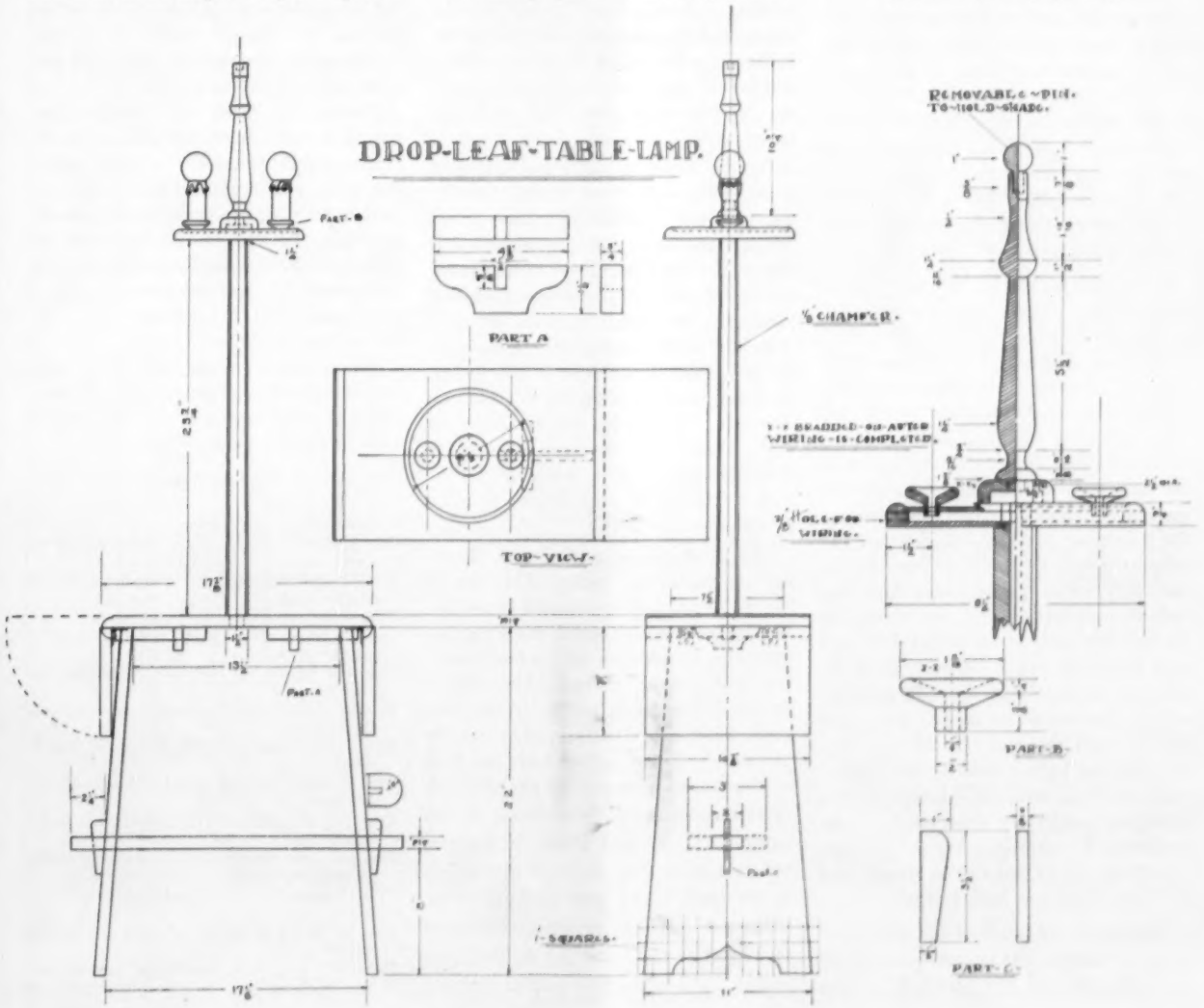
There are many learning processes involved in making this project from which the student will benefit, including rabetting, turning, mortising, and, of course, cutting and gluing.

This lamp may be made of either walnut or hard maple. Maple is probably the better wood, for it can be finished in a rich colonial brown, so cherished by the original makers of this type of furniture.

The legs are constructed of ¾" material. Stock may have to be glued to obtain the necessary width. The design for the bottom of the legs should be drawn on cardboard first and then traced on the leg. The design may then be cut out on the band saw. Legs are held together at the bottom with a stretcher that has a keyed mortise-and-tenon joint.

For the upright column, two pieces of stock ¾" x 1½" are glued together. A

(*Continued on page* 34)



Cost is low with this versatile

Extension Flash Unit

By John M. Avery

General Brown Central School, Dexter, New York

AN extension flash unit, often rather expensive if bought commercially, can be made in the school shop without too much difficulty. The average high-school student, as he becomes more experienced in photography, wishes to branch out from the regular flat lighting he gets with shots taken with the camera-mounted flash gun. That is where this unit comes in. In appearance, it looks as professional as any of the best equipment on the market and also has some additional features.

Since the basis of any flash unit is the reflector, the one used here was taken from a cheap adapter made to allow the use of bayonet-base bulbs in the larger screw-base sockets. As these adapters are not widely used now, it is likely that a second-hand one could be found. And even if a new one is purchased, the price is just over a dollar. This is also an ideal project for the metal shop to spin from thin-gage aluminum.

Make the socket to the dimensions shown if you use the same size reflector as suggested. Otherwise, alter the socket length to fit. The socket shown was made from ¾" diameter aluminum rod. Machining should be finished except for tapping the ¼"-20 thread in the bottom. Secure the smaller part of the socket in the base strip by peening it to expand the bottom slightly. After this peening, the hole may be threaded. Support the reflector above the reflector base by the two ⅜" pieces. These pieces have the ends turned down to ¼", are riveted in the base the same as the socket shell, and tops are cut to fit the reflector. Hold the reflector to these posts by 4-36 machine screws, location of the screws depending on the exact shape of the reflector. Notice that the bulb is held by the regular push-and-twist-method. This type of construction is simpler than quick-release sockets and a photographer using extension flash would have little actual need for a quick-release bulb feature.

The few small parts of the socket are simple to make. The contact pins shown and dimensioned are planned for use with a regular electric shaver (Schick) replacement cord. It would be advisable to check the end of the cord for the diameter of the contact holes and the spacing before building the socket parts since a different shaver cord might require different sized parts. Start with the socket insulator, a piece of ¼" thick plastic made an easy fit in the socket. An easy way to turn this part is to drill a hole through the center of it and use a screw in this hole to secure it to a piece of rod held in the drill chuck in the lathe. After the two-diameter cross hole is made, the bushing is threaded and turned to make a snug fit in the insulator. The side of the insulator is then filed away to make a seat for the spring so that the spring cannot get out of position and touch the socket shell.

Put the socket insulator and spring in place in the socket and secure them by the insulated contact pin screwed in through the shell. The pin insulator is put on the pin first. These parts should be capable of slight movement so that binding is prevented. Now slip the cord over the one pin and locate the hole for the pin which is screwed in the socket. Drill and tap the socket for this pin and secure it. (These pins can be held in a drill chuck while they are screwed in place. A pin made a press fit in the socket shell would probably be as good as a screwed-in pin.)

The electric-shaver cord was chosen for its low cost (about $1), its 6' length, its fine appearance and flexibility. If a longer cord is needed, use a regular extension in addition as the cord has a standard plug at one end which will fit the extension outlet on the better flash guns. Thus, the extension can be used in place of, or in connection with, the bulb on the camera. If one of the simpler flash units is mounted on the camera, the extension will be used alone. If the gun will take screw-base bulbs, a screw plug in the socket will take the extension. Otherwise it will be necessary to secure or improvise an adapter for the flash-gun socket.

If a wood lathe is not available for the handle, a substitute can be made by using a file handle with a long set screw forced in it. The base of the reflector is flat and large enough to support the reflector in many places. As the base is tapped, it can be mounted on a tripod. A spring clamp unit with a ¼"-20 screw can be made up to hold the reflector the same way that commercial units are mounted.

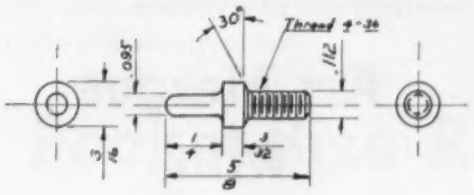
Construction of each part has not been given as drawings on the next page are sufficiently detailed. Although some of the dimensions are given in the thousandths, the builder need not be too concerned as the rubber plug will accommodate slight variations.

Making this flash unit requires the use of a metal lathe but the parts are few and quite simple. It is easily made and even if all parts and materials were purchased new, the price would not exceed $3. The unit shown was made of aluminum except for the insulators and the contact springs and pins. Insulators are plastic and the contact parts are either steel or brass.

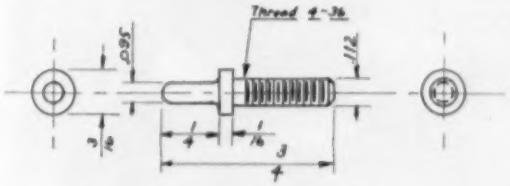
The student builder will have little trouble in making this part and will have a fine piece of equipment for the camera club or for his personal use.

Materials Needed

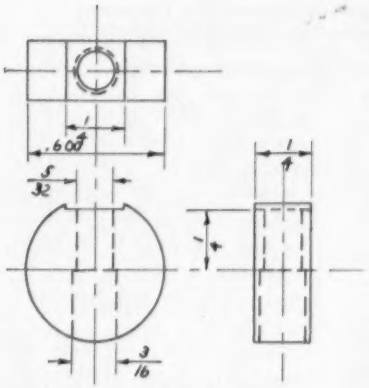
One 1⅜" length of ¾" round aluminum for socket shell.
One 3" length of ⅜" round aluminum for reflector supports.
One 5" flash-bulb reflector from bayonet-bulb adapter unit.
One electric shaver replacement cord.
One 2" length of ⅛" x ¾" flat aluminum for reflector base.
One 6" length of 1¼" sq. hardwood for handle.
One ½" length of ¾" diameter tube for handle ferrule.
One 1¼" length of ¼" steel rod for handle stud.
One 3" length of 3/16" steel or brass for contact pins.
One ⅝" sq. piece of ¼" plastic for socket insulator.
One ¼" long piece of 3/16" diameter plastic for pin insulator.
One 1" piece of 3/16" brass or steel for bushing.
One ⅞" piece of .015 x ¼" steel or brass for contact spring.
Two ¼" long 4-36 round-head screws and lock washers. ★



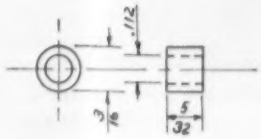
Socket Pin



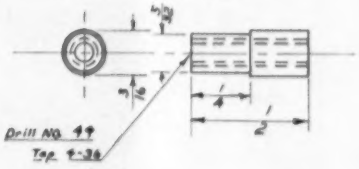
Insulated Contact Pin



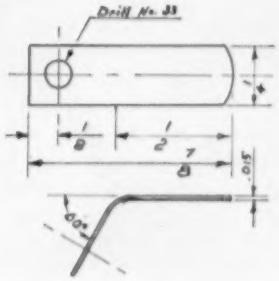
Socket Insulator



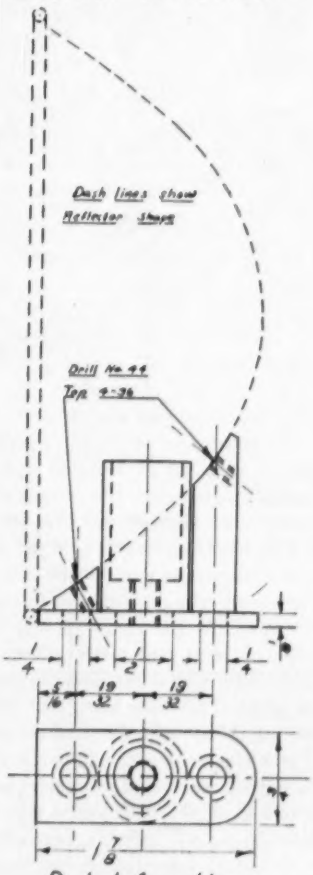
Pin Insulator



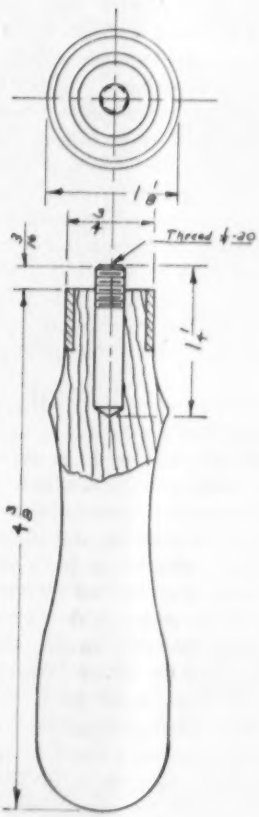
Bushing



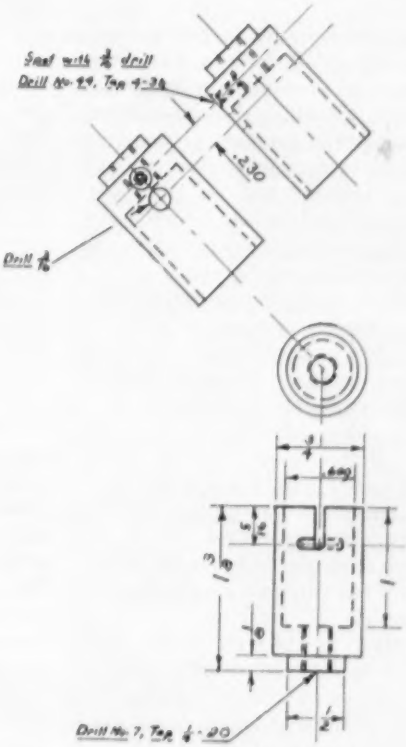
Contact Spring



Partial Assembly



Handle



Socket

Each student contributes "know-how" and progresses at his own speed.

Both groups benefit when

Art Merges with Industrial Arts

By Harold Sutton

Associate Professor, Arts Education
Florida State University, Tallahassee

SINCE art education and industrial arts have a number of common denominators in the same field, Florida State University has, for a number of years, offered a course that is taken by students majoring in both areas. These two groups meet in the same class and at the end of its term come away bearing great respect for each other and achieving insights in a number of new relationships.

Since both fields are preparing teachers for our public schools; both fields used many of the same materials, tools, and processes; and both fields expected their teachers to use these potentials to help children develop personalities and types of behavior that are psychologically sound and socially desirable, we found the merging of art education and industrial arts a natural outcome.

At the beginning it was relatively easy to secure agreement on similar goals and objectives at a verbal level, but the doing level was something else again. Most of us had been trained as "either-or" people . . . either industrial-arts specialists or art-education specialists; both seemed to lack certain insights and skills.

For instance, those with industrial-arts backgrounds could not see, at first, why so much stress should be placed on such things as inventiveness, imagination, and organization of visual form and function. Only people with innate talent could ever hope to develop such insights. Those with art as a background felt that often industrial arts overstressed the reproduction of the thinking of others and the manipulating of tools and materials merely to acquire physical skills.

During the course it is necessary to constantly reconsider what we mean by "helping people develop personalities and types of behavior that are psychologically sound and socially desirable." Do we mean that products procured in materials would not be important and that behavior changes would be all-important? Or would the "process of producing the product" be the avenue for developing desirable behavior changes and desirable products? We agreed with the latter. We came to the realization that both art-education and industrial-arts specialists had insights and "know-how" that the other did not possess. We learned that both had a contribution to make, but without a flexible give-and-take interchange, neither of us could make this contribution. Final objectives in the course became: more curiosity; more inventiveness and ingenuity; more initiative; more cooperative techniques; more craftsmanship; a greater feeling of success and security. To achieve these objectives as problems were solved we considered the relationship of the factors, materials, tools, function, and the esthetic organization of ideas.

Classes were planned for diversified experiences with a wide variety of materials and processes such as ceramics, plastics, metals, woods, leathers, scrap and native materials, weaving, silk-screen printing, block printing, and stenciling. There is no definite time for a student to start working with a certain material. Instead, he progresses with experiences in as many materials as are psychologically sound for him. He learns and develops skills with tools when the solution to the problem demands these skills.

Selfdirection and selfevaluation are also important elements in this environment. There are also opportunities for group participation and the development of cooperative techniques in this experience.

Classes generally work out as an observer could predict. Art-education majors usually have imaginative ideas, but when they try to develop their ideas in materials they are often disappointed. They generally decide that dreaming an idea and sketching it on paper is one thing, but developing the idea with actual materials and tools complicates the problem.

Industrial-arts boys have their difficulties also. Some of them have had considerable experience with wood and metal but here they were encouraged to use materials they have not used before. One young man had difficulty in finding a problem which interested him. Always before his past teachers had told him which project sheet or blueprint to use but there is not a pattern or project sheet in this laboratory.

Another young man turned out a plastic cigarette case which resembled a dog house. An art-education student remarked that cigarettes would be much easier to obtain if the box had not been made so deep and the bottom had been rounded instead of square. And he learned from her observation. Another student reminded him that plastics could be bent and interesting light reflections could be obtained by bending and cutting plastics at angles. The creator of the cigarette case then agreed that he had not experimented enough with the material to discover its possibilities and that he had been using plastics as though it were wood. As the result of this interchange of ideas and many others of a similar nature, students gain respect for each other. They also learn that two or three minds are often better than one.

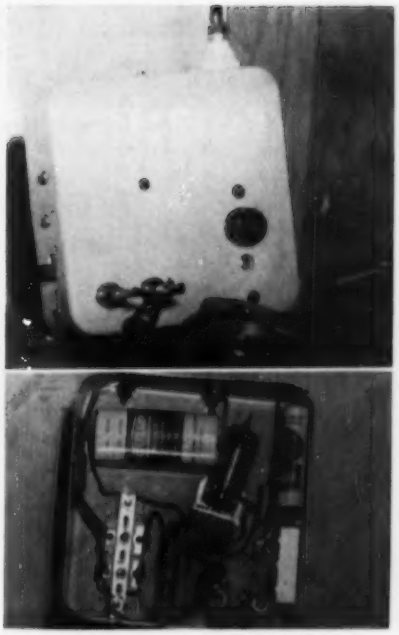
These classes produce future teachers who have learned that industrial arts is not one kind of art experience and art education entirely another. Instead, they are broader, more integrated persons because they are more curious, more inventive, and more confident in themselves. ★

Four-tube performance with one tube adds to the popularity of this

Pocket-Size Radio

By George H. Francis

Assistant Professor of Industrial Arts
Northern Michigan College, Marquette



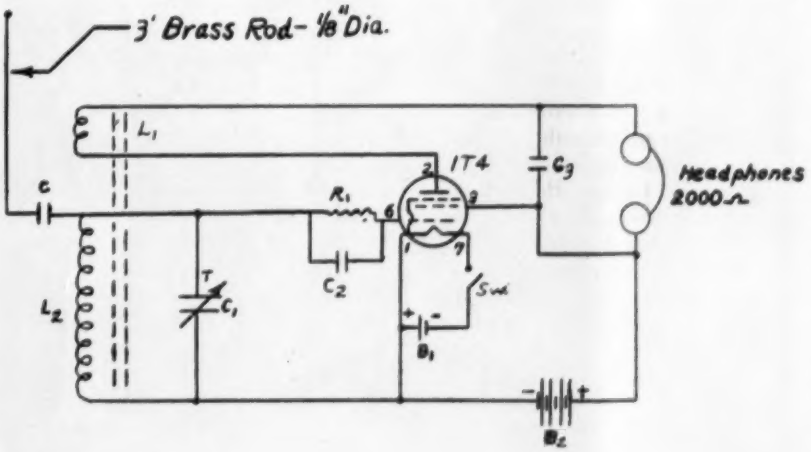
AS a project for a class in the area of basic electronics, the single-tube headphone receiver shown here has many advantages. It is especially popular with students, even more than the conventional single-tube type receiver, because it is pocket size. It has the benefit of simplicity, is relatively inexpensive, and is easily adaptable to the course because it is not too time-consuming to construct. Best of all, it is a one-tube receiver with four-tube performance.

We have used this project with excellent results. It offers an opportunity for students to become familiar with oscillatory circuits, resistor and condenser color coding, as well as the fundamental concept of radio reception.

The circuit itself is nothing unusual. However, anyone familiar with the usual limitations of the majority of single-tube radios—weak reception, little sensitivity, and broad tuning—will be in for a pleasant surprise with the reception of this model. It uses a ferrite core antenna coil instead of the loop antenna, which has an electrical "Q" much higher than the antenna coil.

A small amount of positive feedback, to limit the loading effect of the grid on the resonant circuit, is accomplished by the addition of another winding of No. 26 enameled wire wound close-spaced approximately ¼" from the coil winding on the end of the ferrite "stick." The winding consists of eight turns wound in either direction and cemented in place. Before winding this "tickler coil" remove the 12" piece of wire wound around the barrel of the antenna coil. One end of this wire is soldered to one of the terminals of the coil and the other end hangs loose. Uncoil this wire and discard. The proper amount of feedback is gained by adjusting the powdered iron slug inside the coil. This point will vary with each receiver; however, oscillation should take place when the brass adjusting screw protrudes approximately 1¼" out of the coil.

Adjust the trimmer condenser through its range, that is, from minimum to maximum capacity. If the set is oscillating you should hear a series of whistles as the condenser is rotated. Now adjust the brass screw of the antenna coil to a point where the whistles are no longer heard when the condenser is rotated, adjusting in a clockwise direction. Good performance should be realized with the slug adjusted to a point below oscillation. Should the set refuse to oscillate, reverse the connections to coil L_2 and repeat the above procedure.



In order to make this receiver portable, mica trimmers were used instead of the usual variable condenser. The value of the trimmer used will depend on the radio stations you desire to receive. A trimmer condenser with a value of 50-380 mmfd will tune the major portion of the broadcast band. A short piece of brass rod can be soldered to the trimmer adjusting screw to make tuning more convenient. The set can be tuned with a screwdriver if preferred.

The antenna can be a piece of brass welding rod 3' to 5' in length. To increase the length over 5' defeats the purpose of the ferrite antenna coil and reception will be lessened.

Any case may be used effectively for the set. We used a plastic sandwich box. If the sandwich box is used, it should be the rigid plastic case and not the pliable plastic style, which is also sold in the stores.

The "A" batteries are two penlite cells wired in parallel. The "B" battery is a 30-volt hearing-aid type. The total cost for all parts is approximately $6.50 if all new parts are used.

Parts List

R_1—2.2 megohm, 1 watt condenser.
C—100 mmfd. mica condenser.
C_1—50-380 mmfd mica trimmer condenser.
C_2—250 mmfd mica condenser.
C_3—2000 mmfd mica condenser.
Sw—S.P.S.T. slide switch.
B_1—penlite flashlite cells (2).
B_2—30-volt battery, hearing-aid type.
L_1—vari-loopstick, ferrite core.
L_2—8 turns, No. 26 enameled wire.
Miniature 7-pin tube socket.
Headphones, 200 ohm impedance or higher.
Sandwich case.
Tube—1T4. ★

Now boasting more than 80 chapters

VIC Blazes the Trail

By Leland B. Luchsinger

State Advisor, VIC, Division of Extension, University of Texas, Austin

WHAT IS VIC?

The Vocational Industrial Club of Texas was organized to unite in a common bond students in vocational industrial classes in the various high schools in the state. The club provides leadership opportunities for members through participation in worthwhile educational, social, recreational, and vocational activities. Through this club, young men and women have developed wholesome attitudes toward useful citizenship in school and community.

BELIEVING that each one of us is strongly moved by the desire to have a place, to be liked by others, and to do something worthwhile, vocational and industrial educators in Texas have shaped and fashioned a statewide organization which answers this motivating need.

Called VIC (Vocational Industrial Club of Texas) this up-and-coming, worthwhile, growing organization is designed to initiate the enthusiasm, interest, and ingenuity that is necessary for future workers in their chosen occupations.

VIC activities teach the traits of leadership to those who have the ability, the desire, and the interest to lead. It provides adequate opportunity for training those not so inclined to leadership in the qualities of good followership. All members of a VIC organization learn to cooperate, to work together, to get along as a team, and to function successfully in a group. Success of the local VIC chapter depends on each member assuming his share of the responsibility. Development of the whole individual is one of the outcomes of participation in VIC activity.

Through VIC, Texas students learn that one individual is not always right and that others are not always wrong. He learns to bear and forbear; he learns the meaning of tolerance. In local, district, and state meetings a VIC member learns to adjust himself to the group helping him to develop the kind of personality that leads to greater success in life.

Service to the community is a continuous objective and is carried on during the entire school year by the more than 80 Vocational Industrial Clubs in Texas. However, the concept of "being my brother's keeper" is more predominant during the Christmas season and many successful chapter activities have just been completed in the Lone Star state.

For instance, early in the school year many metal-trades chapters of VIC gather broken toys, repairing them outside the regular instructional period. The youngsters go to the school shops and donate something more valuable than money . . . their time. Repairing toys may call for applying a new coat of paint, combining two or more similar toys to form one complete article, producing a new part to be made on one or more of the many machines in the metal-trades shop, or welding broken metal parts.

Toys are collected from various sources. Notices requesting toys that need repair and explaining the objectives of the metal-trades chapter are placed on school bulletin boards as one means of informing the school students and faculty of the worthy project. Announcements regarding the community-service project are published in school papers and made through school announcements and bulletins. Word is passed around in such a manner that VIC chapters never lack for toys to rebuild or repair.

At Christmastime the rebuilt and repaired toys are distributed to children who would have no presents without the VIC chapter activity. Club members help with the distribution, service clubs give their aid—such as Kiwanians working in cooperation with the VIC chapter—the Salvation Army helps, or all the toys are presented to an orphanage or youth home such as "Boys Town."

One chapter, located in Texas near the Mexican border, entertained boys in an orphanage with an outing and a picnic meal. Entertainment, by tradition, was provided with a *pinata*, an earthenware jar decorated with tissue paper and filled with candy, nuts, gum, and fruits. A member of the group is blindfolded and given three swings with a long stick to break the *pinata*. At the moment of impact, a wild scramble for

Hot dogs, corn chips, ice cream, and cake were on the menu the day this VIC chapter entertained wards in a boys' orphanage. Entertainment included the breaking of the traditional *Pinata*.

the goodies is touched off. The VIC members who participated in this enjoyed themselves as much as the guests, in addition to having a feeling of satisfaction for bringing happiness to the boys who do not have too many opportunities for a party.

VIC girls do their part, too. One cosmetology charter gives underprivileged students in their school a complete beauty treatment, reaping intangible benefits for these students. The chapter finances treatments from their VIC chapter treasury.

All VIC members are learning a trade, acquiring knowledge, gaining experience, developing skills, and molding personality. Through their shop training, VIC members offer to their community a talent that few can offer . . . their specialized skills. One chapter constructed more than 800 toys, not simply one-piece affairs, but complex, workmanlike, finished products. Members were not afraid to tackle intricate jobs. They built cradles, doll beds, four-poster beds, chair and table sets, stilts, stick horses, wheelbarrows, two-wheel wagons, marble games, guns and "topsy-turvy"—a clown balanced in such a way he would walk up or down a stick. Some chapters produced toys by the truckload!

Play tables for a local crippled children's hospital were made by another group. The tables were arranged with compartments so the child could be locked in to prevent his falling down. Each one had space for six children and tabletop area for each to scatter his toys. Such a project is one that can be carried on anytime during the school year. VIC chapters in the many high schools scattered throughout Texas also take leading roles in campaigns such as the March of Dimes, Community Chest, and Red Cross.

Better relations between teacher and student is another desirable result of Vocational Industrial Club activity. Local chapters sponsor dances, hayrides, picnics, with intimacy and respect springing up through close-working relationships of advisor and club member. And this atmosphere of working together carries over into the class and learning situation.

Club participation undoubtedly aids in character development. Many times there are work assignments which call for various socially acceptable qualities. For example: club work calls for honesty, loyalty, initiative, and tact. In the completion of various tasks, character of the individual is strengthened.

Working after school, a VIC mill cabinet-making chapter produced these toys for needy children.

The local chapter treasurer is responsible for funds belonging to the group. Through guidance on the part of the club advisor, close association with fellow members, the best in a student may be challenged. Many times the VIC club activity provides an environment not present in the home life or in the community of the individual which would help him to develop to his fullest.

Poise and selfconfidence are developed, too. Watching young people perform as a member of a district or a state VIC meeting would reaffirm any adult's faith in our youth. To see these young officers preside over a group, to witness the efficient and businesslike manner in which meetings are carried out reveals the selfassurance that these youngsters have gained. These district and state meetings, which are a regular part of VIC activity, provide an opportunity for learners to observe shops in other parts of the state and to gain an understanding of what is being done elsewhere in the world. Often these youngsters carry back to their local situation ideas which strengthen the program on the local level. Tours of industry are of value, too, for through them individuals often discover factory situations and job opportunities that are interesting and attractive to them.

Parents, teachers, and school administrators should recognize the public-relation values of the Vocational Industrial Club. Many times trade and industrial-education people fail to let the public know what they are doing. Often it's because shop buildings are some distance from the regular school layout, but sometimes the reason is that shop people withdraw into themselves. When this is the case, very little information gets to the public about what is being done and the values that result from a trade and vocational program. And a public lack of interest backfires with a lack of interest on the part of the student body. There is probably no better way to inform the public of the job you are doing than through a successful Vocational Industrial Club.

We believe VIC is the answer to the premise that it is the teacher's responsibility to train the whole youth. No one will deny the importance of assisting youth in developing skill or acquiring knowledge. But the teacher must go further than this. He should assist young people in attaining proper and wholesome attitudes as well.

Participation and membership in a youth organization such as the Vocational Industrial Club of Texas provides an opportunity for youth to make the greatest use of their talents, to become well-adjusted workers and future citizens who will take their rightful place and become assets in local communities.

Information concerning the bylaws of the Texas club, its constitution, officers and their duties is included in an official handbook of the club. Copies may be obtained from Division of Extension, The University of Texas, Austin. ★

Easily handled aluminum makes a

Hot-Dish Stand

By John D. Parr
North Intermediate School, Saginaw, Michigan

AN aluminum hot-dish stand, made on the principle of the old-fashioned trivet, is an inexpensive project that is easy for the younger pupil. It is useful, too, and will be put to work the minute the student gets it home.

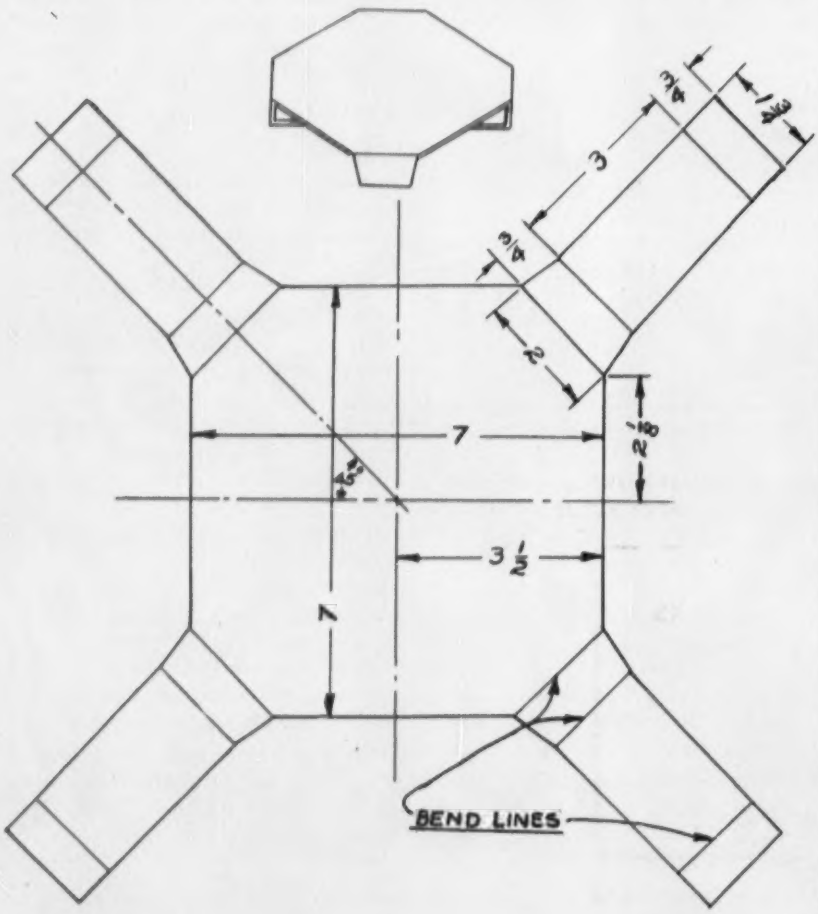
Aluminum is recommended because it is easy to work. During the making of the project, the student gets experience in layout, cutting with tin snips, cutting with a cold chisel, filing, bending on a brake, buffing with a muslin or wire wheel, and lacquering or enameling.

First, lay out dimensions and cut sides of legs with tin snips. Finish cutting out with a cold chisel and hammer, then file all edges. Bend in a bar folder, buff, finish, and the stand is complete.

Several methods of decoration may be used. For instance, it can be peened, etched, tapped, spot finished on a drill press, buffed with a wire wheel (.004 or .005), or buffed with a muslin wheel to a bright finish. Or any combination of these methods might be employed.

Legs keep heat from marring a table's surface.

Since the entire job can be done in a short time, students' interest will not lag before the final touch is given. ★



A Mission? . . . *from page* 11

and accept this point of view, it immediately presents a challenge and an opportunity. What other school subject is there that offers such flexibility and such opportunities for each student to succeed, at least to a certain extent? In this field it is not necessary that each student make the same project or advance at the same rate of speed. The work can and should be adjusted to the ability of the individual. On the other hand, teachers must be on the alert lest, in their desire for each student to cover a predetermined course of study or master a prescribed number of processes and operations, they formalize and regiment the subject and thereby lose this opportunity for meeting the real psychological needs of all of their pupils.

Know That Boy

There is a further and very important implication in the modern concept of learning. If, as has been pointed out, the major drive to individual behavior lies in the desire for social approval and selfesteem, then the problem of education becomes very much of an individual matter. Activities which will satisfy one boy or girl will not be satisfactory to another. This seems to indicate that one of the most important parts of the teacher's work lies in knowing each of his students well enough to understand him and to adjust the program to his individual needs.

This cannot be accomplished if the teacher looks on his job as the teaching of a group. Some group instruction is certainly necessary for the purpose of opening up the possibilities and opportunities which industrial-arts activities provide, but on and beyond that is the whole field of individual instruction with its manifold opportunities for giving personal help and instruction as the occasion presents itself. In many ways teachers have neglected this opportunity.

Much time and effort has been concentrated toward perfecting demonstrations and related lessons, but once these are over teachers have confined their activities to helping the students in the development of skills. They have thereby missed their greatest opportunity to work with pupils as individuals in helping them to grow along the lines of desirable behavior, and at the same time help them to the satisfactions which they need to build up and maintain their selfesteem.

Those who have the responsibility for teacher education have been partly responsible for this lack of emphasis on

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working with individuals. A great deal of effort has been devoted to perfecting students in how to teach groups—how to give a class demonstration—how to teach a related lesson—but relatively little has been done in preparing them to work with individual pupils. This is probably one of the greatest single weaknesses of industrial-arts teacher education today.

Let Him Think

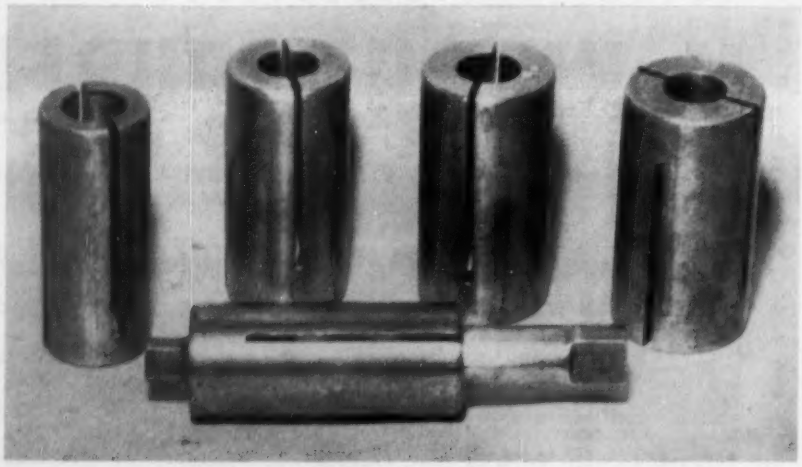
But industrial arts has a further mission—an intellectual mission. For centuries educators have been saying that the most important outcome of education should be the ability to think straight and to reason correctly. The question is "How can this ability best be developed?" The answer is simple—one learns to think and to solve problems by thinking and solving problems. It's the old idea of learning by doing.

Industrial arts is in an especially strategic position to contribute to this end. Every project that a student makes involves certain problem situations: "How do I fasten these parts together?" "Of what material shall I make this part?" "What kind of finish will look best on this project?" Each of these and hundreds of other questions present problem situations where the student must think and plan.

It seems evident that from the standpoint of what the pupil learns—from a purely educational point of view—it is much more important that a boy or girl be able to plan a project than that he be able to make it. But planning does not come spontaneously — it must be taught, nurtured, and directed the same as any other skill.

In Conclusion

To recapitulate, it appears that industrial arts has at least three missions: a recreational mission to help boys and girls to enjoy the opportunities afforded them to work with tools and materials; a psychological mission to make it possible for every boy and girl to achieve success and to build up his own inner selfesteem; and an intellectual mission to help boys and girls to develop their ability to think and plan. These desirable ends will continue to elude the profession, however, unless it shakes itself loose from the traditional worship of the process and operation as *primary* aims of industrial arts, and until it can forget its emphasis on the teaching of groups, and concentrate on what happens to the individuals within each group. If it can do these things, the achievement of a glorious mission is within its grasp. ★



A variety of sizes of expansion mandrels make a useful addition to shop equipment.

A useful item, simple to make

Expansion Mandrel

By Alfred Grayshon

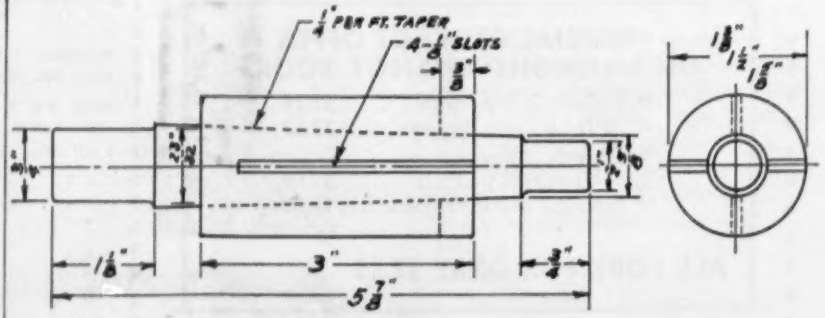
Olney High School, Philadelphia, Pennsylvania

EXPANSION mandrels are very useful for holding work having large or odd-shaped holes. They also serve as a useful project in the machine shop for, although they are simply made, they furnish good experience in such processes as center drilling, facing, tapering, chucking, and taper boring.

To make the expansion mandrel shown here, the student will need one piece of cold rolled steel 7/8" diameter x 6", two pieces 1¾" diameter x 3 1/16", and one piece 1½" diameter x 3 1/16".

In making the mandrel, the piece, after being cut, is center drilled and then the ends are faced. The end diameters are turned and the center portion is taper turned. Experience is gained in a slitting operation also.

The operations in making the bushings are as follows: cut the pieces; face the ends; rough turn 1/32" oversize; chuck; drill a 19/32" hole through; taper bore; press on the mandrel; finish turn to size and round the ends slightly; remove from mandrel; set up in the milling machine to cut two slots from each end with a slitting saw. ★



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happenings in industrial education

New IA Associations

IDAHO and Texas are two of the latest states to join the ranks of those having a state industrial-arts association.

The Idaho association was organized at a recent meeting in Boise attended by 14 industrial-arts teachers in the state. Paul O. Blair of Boise was chosen as first president and Irving L. Stiber of Caldwell was named secretary-treasurer. A committee to draw up a constitution and by-laws was also named at the organization meeting. At present the association has 40 members.

The Texas Industrial Arts Association had its organization meeting in Waco with representatives present from the Texas State Department of Education, three teacher-training institutions, and eight of the ten industrial-arts teacher clubs in the state. Winifred Mayfield of Snyder was elected as president of the new organization. Earl Blanton of North Texas State College, Denton, was named vice-president, Steve Quitta of Crane was elected secretary, and John Ballard of Freer was chosen treasurer.

Standards Discussed

AT the ninth annual meeting of the Kentucky-Tennessee Industrial Arts Teacher Trainers Association, held Oct. 28-29 in Murray State College, Ky., exploratory plans for setting up standards for both physical equipment and attainment in industrial arts were discussed. Fred W. Martin and L. C. McDowell of the Kentucky State Department of Education were included among the 24 educators attending the meeting.

The association, originally composed of Kentucky colleges engaged in the preparation of industrial-arts teachers, has for the past two years also included the Tennessee colleges.

Spring Projects Fair

PLANS are now being made for the fifth annual North Carolina Industrial Arts Projects Fair, which will be held in conjunction with the annual convention of the North Carolina Industrial Arts Association in Greensboro on May 11 and 12. Projects from both industrial-arts and vocational classes in the public schools will be displayed.

Industrial-arts instructors from South Carolina and Virginia will also be invited to the fair. Speakers at the convention will include R. Lee Hornbake of the University of Maryland and Dewey Barich, director of educational relations, Ford Motor Company.

Educator Honored

L. T. SMITH, for the past 35 years head of the industrial-arts department at Western Kentucky State College, Bowling Green, was honored by his former students and the Arts and Crafts Club with a homecoming luncheon November 19 in the college student center. In recognition of his years of inspirational leadership a sterling silver service set was presented to him.

Oregon Meeting

PRACTICAL demonstrations of new methods and materials were featured at the first fall conference of the Oregon Industrial Arts Association, Nov. 11-12, in Corvallis. Demonstrations included squirt welding, electric melting of iron, blanking and stamping, gem faceting, liquid plastics, iron wroughting, and leather tooling. J. W. Sherburne, head of the department of psychology, Oregon State College, was one of the speakers at the meeting.

New Ohio VA Officers

PAUL MECHLING, teacher of vocational agriculture at Lancaster, Ohio, is the

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new president of the Ohio Vocational Association. Merle Strong of Ohio State University is treasurer, and Mrs. Orpha Palmer, Greenville, is secretary. The officers were elected at the annual convention in Cleveland in October.

Visual-Aid Meeting

FINANCING Audio-Visual Programs" will be the theme of the fourth annual audio-visual conference to be held at Stout State College, Menomonie, Wis., on April 10. Audio-visual specialists, administrators, and teachers from several midwestern states will attend. Principal speaker will be L. C. Larson, director of the audio-visual center at Indiana University. David Barnard, head of the audio-visual center at Stout State College, will be general chairman.

More IA Classes

FIFTEEN new industrial-arts programs were reported in the state of Illinois this year by the State Board of Vocational Education. New programs were started in Mason City, Mackinaw, Augusta, Payson, Pittsfield, New Berlin, Buffalo, Columbia, Washburn, Yates City, LaMoille, Roberts, Roseville, Witt, Elmwood, Mills Shoals, and Niantic.

Maryland Meeting

WILLIAM G. PURDY, project engineer of the advanced design department of the Glenn L. Martin Company, spoke on "Advanced Concepts of Rocket Design" at the recent fall meeting of the Maryland Vocational and Practical Arts Association in the Mergenthaler Vocational-Technical High School, Baltimore. The meeting was held in conjunction with the Maryland State Teachers Association's annual convention.

Convention Calendar

California Industrial Education Association, Bakersfield, March 16-17.
Ohio Industrial Arts Association, Neil House, Columbus, March 22-24
Illinois Vocational Association, Pere Marquette Hotel, Peoria, March 22-24.
New York Vocational and Practical Arts Association, Hotel New Yorker, New York City, April 12-14.
Michigan Industrial Education Society, Sheraton-Cadillac Hotel, Detroit, April 12-14.
Connecticut Industrial Arts Association, Spring Conference, Teachers College of Connecticut, New Britain, April 20-21.
Missouri Spring Conference on Industrial and Distributive Education, University of Missouri, April 20-21.
American Industrial Arts Association, Milwaukee, Wis., April 24-27.
North Carolina Industrial Arts Association, Greensboro, May 11-12.

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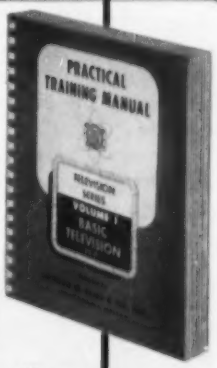

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AVA Convention Report

DELEGATES to the 49th annual convention of the American Vocational Association in Atlantic City December 5-9 voted to increase the dues of members and to give the members a direct voice in the election of the president of the association. This action climaxed a week of profitable professional activity for the over 2000 members in attendance at the meetings who also visited the nearly 100 commercial exhibits.

The new dues schedule goes into effect December 1, 1956, with a $2 increase from $3 to $5 when dues are paid through a state or local association and from $4 to $6 when dues are paid directly to the AVA.

Members will be able to vote directly for the president of the association, under a constitutional revision which requires that at least two candidates for the presidency be chosen by a nominating committee with additional names added from the floor at the annual meeting of the House of Delegates. The ballot for the presidency will be published in the *AV Journal* and election will be by the membership at large. The first ballot will appear in the February, 1957, issue of the *Journal*.

There was some opposition from the floor in the House of Delegates meeting to the above constitutional changes but both were passed by overwhelming majorities.

New officers elected at Atlantic City were as follows: president, J. Fred Ingram, state supervisor of trade and industrial education, Montgomery, Alabama; vice-president for home economics, Dorothy Lawson, chief, bureau of home-economics education, New York State Education Department, Albany; and vice-president for trade and industrial education, Samuel L. Fick, chief, bureau of industrial education, California State Department of Education, Sacramento.

Charles W. Sylvester, director of vocational education, Baltimore, Maryland, schools, was reelected treasurer.

The Ship's Citation for distinguished service to the field of industrial education was presented to Frank C. Moore, director of industrial arts for the Cleveland, Ohio, schools and former president of the American Vocational Association. The presentation was made by John Claude, representing the Ship, an organization of firms serving the vocational-education field.

The AVA went on record favoring federal legislation for school building construction and federal funds for specialized vocational equipment and instructional aids. Once again the Congress was urged to appropriate the full amount authorized under the George-Barden Act of $29,268,080 for federal support of vocational education with elimination of the restrictive language limiting the appropriation for distributive education.

A slap was taken at the White House Conference on Education when the convention noted with concern the omission of training for vocational competency from the list of what our schools should accomplish which was issued by the White House Conference. A request was made to Conference officials to examine the round-table reports to determine how often vocational education was emphasized during first-table discussions.

The U. S. Office of Education was warned, in a resolution, not to weaken or lower the status of the Vocational Division and the full appropriation for the division under the present law was requested, as well as increased appropriations and strengthening of the Office of Education. ★

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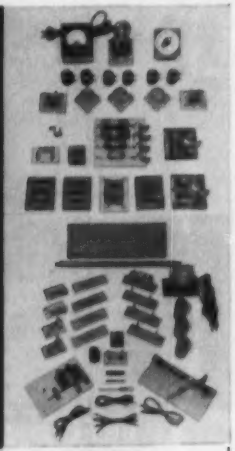

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how to square up a board by MACHINERY

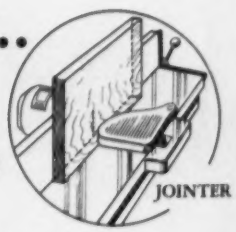
1 THICKNESS...

*SURFACE BOTH SIDES THROUGH PLANER TO REQUIRED THICKNESS.

MARK TOWARD BEST EDGE.

~~THICKNESS~~ × WIDTH × LENGTH

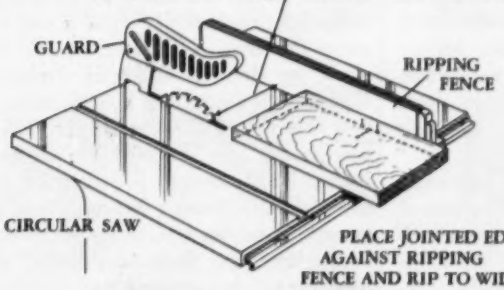
2 BEST EDGE..



RUN BEST EDGE OVER JOINTER AND MARK.

3 WIDTH...

SET RIPPING FENCE SO THAT DISTANCE FROM FENCE TO POINT OF NEAREST SAW TOOTH EQUALS DESIRED WIDTH.

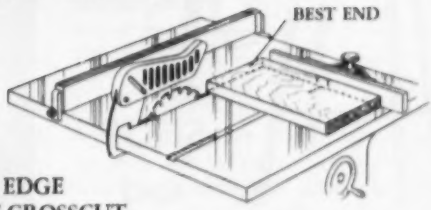


~~THICKNESS~~ × ~~WIDTH~~ × LENGTH

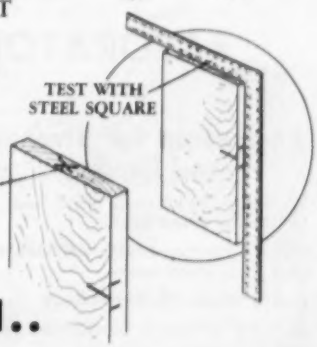
*IF BOARD IS WARPED, HAND PLANE THE WARP OUT ON ONE SIDE BEFORE RUNNING THROUGH PLANER.

IF SHOP HAS NO PLANER, BUY LIMBER SURFACED TWO SIDES, (52S), MARK BOARD TOWARD BEST EDGE . . . PROCEED TO STEP 2.

4 BEST END...

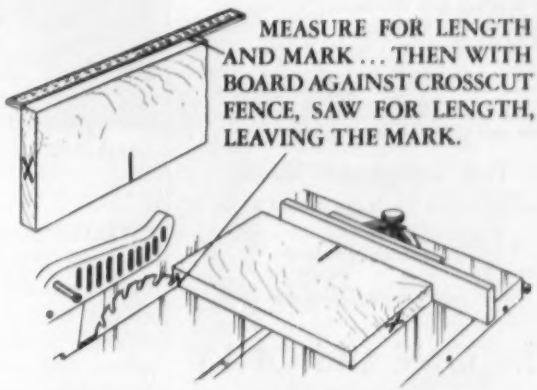


PLACE JOINTED EDGE AGAINST CROSSCUT FENCE AND CUT BEST END SQUARE.



5 LENGTH..

MEASURE FOR LENGTH AND MARK ... THEN WITH BOARD AGAINST CROSSCUT FENCE, SAW FOR LENGTH, LEAVING THE MARK.



~~THICKNESS~~ × ~~WIDTH~~ × ~~LENGTH~~

NOW THAT THE BOARD IS SQUARE, AND AFTER ALL TOOL WORK SUCH AS BORING HOLES, ETC., HAS BEEN COMPLETED, SET A SHARP PLANE SHALLOW . . PLANE OUT ALL MACHINE SURFACER MARKS . PLANE ENDS OF BOARD WHICH MAY BE EXPOSED . . THEN SAND.

NOTE:
- STEP ONE: PROVIDES THE THICKNESS OF THE BOARD.
- STEP TWO: PROVIDES A STRAIGHT EDGE FROM WHICH TO MEASURE.
- STEP THREE: PROVIDES THE ACTUAL WIDTH OF THE BOARD.
- STEP FOUR: PROVIDES A SQUARED END FROM WHICH TO MEASURE.
- STEP FIVE: PROVIDES THE ACTUAL LENGTH OF THE BOARD.

THE above chart can be used as a teaching aid by pasting it on cardboard and hanging it in a conspicuous spot. Coloring parts with pencils adds to student interest.

By J. S. Turnbull

Monroe Junior High School, Seattle, Washington; author of "Modern Woodworking Projects"

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Project Design

What the industrial designers are doing (One of a series)

CHAIR AND SMALL DESK

Designers: CHARLES EAMES, GEORGE NELSON
Manufacturer: HERMAN MILLER FURNITURE CO. ZEELAND, MICHIGAN

TODAY, more and more people have come to the realization that art is found not only in the form of rare objects in a museum but also in the mass-produced products seen in homes, offices, and stores. The idea that only hand-made objects can have artistic quality is losing ground, for the simple, clean lines of today's design have awakened a new sensitivity to basic functional form.

With this new awareness has come greater interest in design. The person who reads that the outstanding American designer Raymond Loewy maintains that the commonplace Coke bottle is an outstanding piece of design does not let it go at that but starts to do some thinking. It is true that the bottle fits the hand well and is easily held. The shape is admittedly unique and readily recognized, an advantage to the manufacturers of Coca-Cola. Other features might be mentioned but the point here is that, with an emphasis today on art (or design) in utilitarian objects, a whole new field of interest has opened up. In some cases people are finding that certain examples of this industrial design gives them more pleasure than they feel when they visit an art museum.

The individual who has cultivated an interest in contemporary design might recognize the chair illustrated above as one of the series of famous Eames chairs made by Herman Miller in Zeeland, Michigan. It might be a logical assumption that Eames likewise did the desk; however, it was designed by another internationally-known young artist in materials, Mr. George Nelson. There is more than adequate strength in steel of both pieces, yet there is a feeling of lightness well in keeping with the smaller interior of today's homes. The storage compartment of the desk with its sliding masonite doors is skillfully placed for easy access. The frame is of sturdy angle stock. Micarta was chosen for the desk top and storage unit.

Designed to serve as a small auxiliary desk and chair, both pieces are excellent illustrations of the trend toward greater use of metal in furniture.—*Robert A. Tinkham, Assistant Professor of Industrial Education, University of Illinois.*

Merit awards prove that

Status Is Important to Kids

By Al Haber

Junior High School 158, Queens, New York City, N.Y.

TEACHERS of emotionally disturbed children will agree that if you want to get a "handle" on a maladjusted boy, make him feel like a big shot.

The boy will love you for it because there's one thing a disturbed child wants . . . and needs badly if we want to help him cope with his problems . . . it's self-esteem, status.

This is daily fare on our educational menu, a tasty dish that can be as varied as the teacher's imagination.

The print shop specialty of the house is "titles" . . . served up on a fancy pedagogical platter. And do the kids eat it up!

Here, we confer honors on boys who have passed a series of jobs that increase in difficulty as they move up the ladder. Just like the Boy Scouts, it's not hard to become a tenderfoot, but you've got to know your stuff to make second- or first-class scout.

This is the way we work it. A boy who does the first three elementary typesetting jobs becomes a "Junior Printer." A somebody, a man of distinction, as far as the print shop is concerned. But this is only an appetizer. The main dish is yet to come.

P.S. 611 Bronx — Francis J. Jones, Principal

THIS IS TO CERTIFY THAT

Samuel Robbins *OF GROUP* 6

HAS BEEN AWARDED THE TITLE OF

JUNIOR PRINTER

January 4, 1955 (DATE) — A. D. Haber (PRINTING TEACHER)

A sample of the awards that are presented.

He moves up through other learning steps: tie-up, lockup, make ready, press work, block printing, dry-point etching, padding, and embossing . . . and he has earned that *piece de resistance*, "Senior Printer."

At this stage of the game, few boys rest on their laurels. They're out for the golden apex of printing status, "Master Printer."

When a boy has earned a title, we make a big fuss over it. In a school for normal children it may be impractical and unnecessary. But our principal encourages ego-building situations which perform therapeutic magic.

We shake the boy's hand vigorously in congratulations. We letter his name on a classroom chart where it stands among those who have also made the grade. We send a "title" certificate to the principal who later presents it to the delighted youngster in the auditorium amid pomp, ceremony, and applause.

Editor's Note: Mr. Haber is writing about a school where he formerly taught in the Bronx, New York. It is one of several "600" schools which were organized in New York City for the benefit of emotionally disturbed children. Some of their deviate symptoms are truancy, delinquency, belligerency, extreme reticence, defiance of authority, trouble-making, etc. The school is for boys and has a pupil register of approximately 200 children and is staffed by 17 teachers. The most extreme problem cases from public schools throughout the Bronx are referred here where these specially selected teachers join in therapeutic teamwork. The school has four shops: printing, woodwork, arts and crafts, and metalwork. ★

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. . . safer to operate, easy to learn on

For every school shop, laboratory and classroom . . . (from beginning classes in industrial arts and vocational education through advanced courses in trade schools and universities) . . . Sheldon builds a lathe to fit each academic, space and budget requirement.

Sheldon lathes are modern in design. With their easy-to-operate controls, students can learn basic lathe operations quickly and rapidly advance to practical shop projects.

From the largest 15" swing geared head lathe to the smallest 10" swing bench lathe, every Sheldon-built lathe meets the same rigid standards . . . standards that insure long life with minimum maintenance requirements in your school shop.

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City .....
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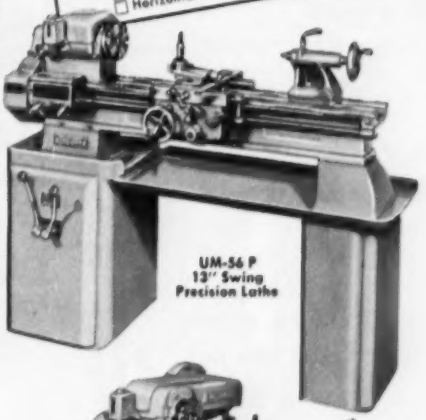
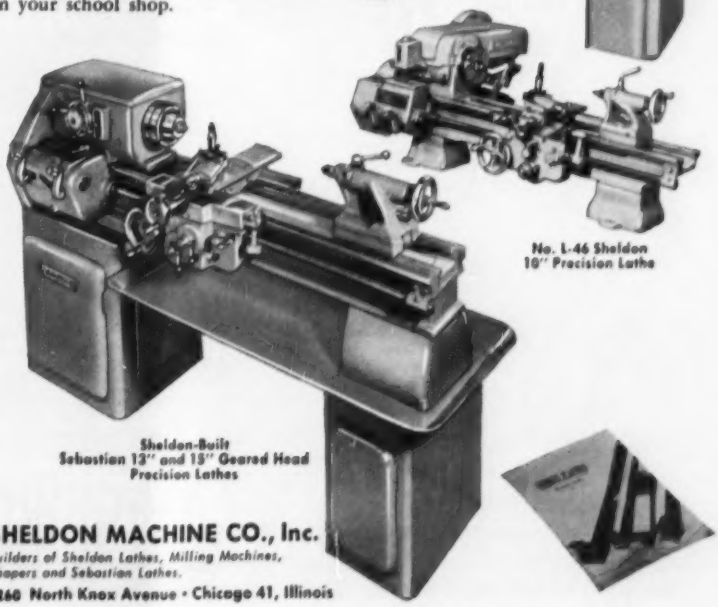
☐ 13" ☐ 15" Sebastian Geared Head Lathes
☐ Horizontal Milling Machine ☐ 12" Shaper



UM-56 P
13" Swing
Precision Lathe



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KINKS

Payment will be made for each Kink published. Send to Editor, School Shop, Ann Arbor, Mich.

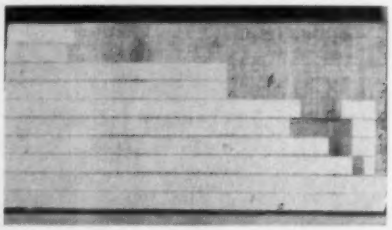
Plastic for Files

Keeping file handles in shape is a big headache in my shop. Here's a way to solve it.

Shape bar plastic (the type used to make screwdriver handles) with an engine lathe, using a round-nosed cutting tool. Drill a hole in the end of the handle that is slightly smaller than the tang of the file. Next, dip the handle into lacquer thinner and let dry. This will put a glossy finish on the plastic. To assemble the file and handle, heat the tang of the file until it will just melt the plastic, and force into the hole previously drilled.

When a file needs to be replaced it can be heated and the handle removed. The handle can be used a second time by rotating the tang 90° in the handle. It is even possible to use the handle a third and fourth time by using a larger file for the replacement. Dipping the handle in lacquer thinner occasionally will help keep the handle attractive.—*Don E. Coe, Sandusky, Ohio, Public Schools.*

Precut Tape for Economy



A good way to cut down on excessive waste of drafting tape is to precut the tape in sizes suitable for securing paper to a drawing board. First, place strips of the tape on soft wood, then cut various-sized strips with a knife or razor blade. The student can then choose the length of tape he needs.—*William O'Reilly and Charles Green, Middlesex County Vocational and Technical High School, New Brunswick, N. J.*

Finished and Unfinished Teaching Aid

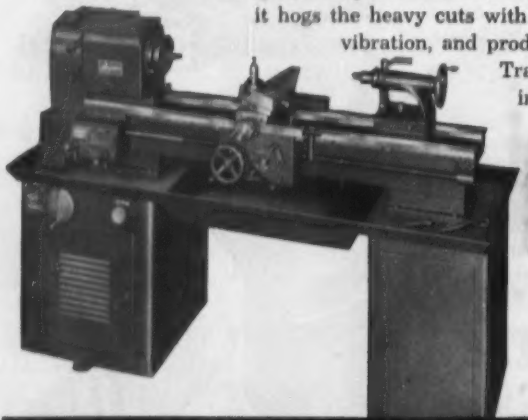
My students built a lumber-display rack during a course in wood finishing. Each piece is made from a different type of material used in the wood shop. One side of the wood is finished with shellac or varnish . . . the other side is left in its raw state. This aids students in determining what their project will look like when finished. Material of each piece is identified and the finish is labeled with printing done in India ink.

Each piece of material is slightly shorter than the space between the shelves and dowels in the centers of each end of the samples allow it to be turned for examination. Samples are also used for lumber identification. Students study and compare the samples and then take a test over another set which is kept for that purpose. All of the samples may be removed and others substituted or the shelves may be used for display purposes. At the upper left-hand corner is a model of a popular end table.—*Robert S. Tupper, Canton, South Dakota, High School.*

"Best of the Week"

Since the competitive instinct is a powerful motivating force, we take ad-

from its big ball-bearing spindle . . . . to the precision carriage . . . . along its rugged, accurate bed . . . . to the tailstock . . . . and down to the variable speed drive . . . and its solid, strong, convenient cabinet . . . . the No. 6560 Logan 14" Lathe is ruggedly proportioned, precision built and dynamically balanced. Its superiority is evident as it hogs the heavy cuts with almost no perceptible vibration, and produces precision results. Trains the student on an industrial lathe. At your Logan dealer's. Write for Bulletin 14-L.



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14⅝" swing over bed
9" swing over saddle
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40" between centers
Variable Speed Drive
Ball Bearing Spindle
38 to 1200 rpm

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vantage of this fact by displaying samples of student-produced work on a "Best of the Week" bulletin board. One section of the board is for beginning students; another section for advanced classes. A small card is used alongside each sample to show who performed the various operations necessary to produce the item.

Instructors will find that the more professional and impressive this bulletin board is made, the more of an educational tool it becomes. Attractive backgrounds, careful mounting, use of spotlights, publicizing in the school paper, and the giving of extra credit points toward term grades help to create and maintain the desire to turn out work that rates the "Best of the Week" recognition.—*Robert M. Smith, Wheaton, Illinois, High School.*

Printer's Measure

Many junior-high students go into printing classes with no conception of measurement. In order to make the teaching of the line gage easier, I construct a large one to scale and hang it in a prominent position in the shop. (The one illustrated is scaled at 1′ to the inch.)

Inches are measured at the top of the gage and picas at the bottom. The pointed slider can then be moved to any desired position to indicate the point of measure being discussed.

Following this instruction, a measuring test can be given, asking students to measure a series of various short lines printed on a card. They write their answers in the margin. The instructor is thus aware of the status of his class, as far as the understanding of printer's measure.—*R. W. Engelmeier, Pittsburgh, Pa., Public Schools.*

Oven Timer Times the Kiln

Overfiring a kiln is an always-present danger, resulting in spoiled objects for pupils in either high-school or adult-education classes. Cost of replacement on equipment is no small item, either. For this reason, I connected an electric time clock to my kilns in series with the power supply. I purchased the clock from a radio-supply house during a surplus sale for $4.95.

The clock is the type used on an electric stove to shut off the power after a pre-set number of cooking hours. From experience, I know that my kiln requires approximately 6 hours for an average firing time. I set the clock for 6 hours, 15 minutes cooking time and commence firing. I still use a cone, but should I forget to shut the kiln off, serious overfiring will not result.—*Robert J. Ullery, Tappan Zee High School, Piermont, New York.*

A Thorough Shellacking

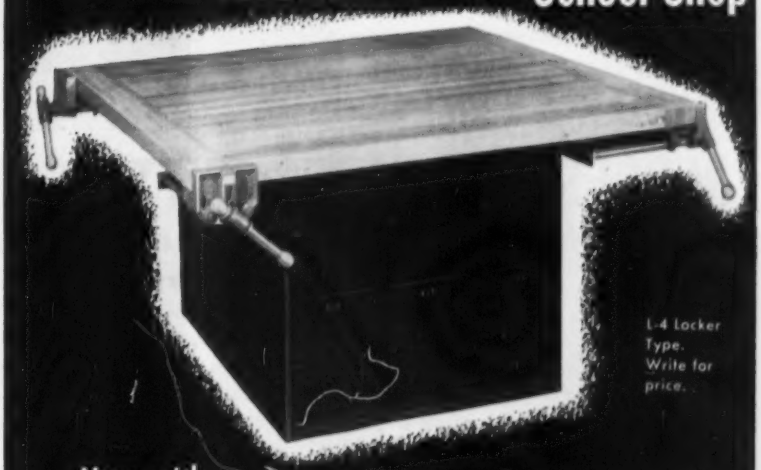
The three coats necessary for shellac finishing are expedited by this method.

Color code the brushes in the colors of the flag (red, white, and blue) and solder brushes to lid of each jar so they are permanently affixed in the jar containing the proper shellac and alcohol mixture. Red is the first coat; white, the second; and blue the third.—*David Davidson, Alicia Crossland School, Baltimore, Md.*

Wanted—Teaching Kinks

SHOP teachers are urged to send in brief descriptions of kinks and short cuts which they have found helpful in their shop. Send to the Editor, SCHOOL SHOP, Ann Arbor, Michigan. Payment will be made for each kink published.

The Improved B-G 4 in 1 Locker Type Bench for the School Shop



L-4 Locker Type. Write for price.

Now with Spring Hinges and 2¼" Maple Top, Electronically Glued

The exclusively B-G King Size woodworking bench that enables students to do more in less space. Sturdy, reinforced 64" x 54" top of selected, properly seasoned, kiln dried 2¼" maple precision cut, electronically glued, rigidly bolted for extra long life, and finished in natural with Nelsonite. Four separate work stations with a 5 CD Columbian vise at each corner reinforced with heavy 5" batten providing solid, indestructible foundation. 12 lockers sturdily constructed of heavy gauge metal and finished in attractive olive green enamel. Lockers are equipped with Spring Hinges and each door contains provision for cylinder lock installation. Bases are equipped with angle irons to secure the tops and make for easy installation. Height is 32¼ inches.

New 1956 B-G Catalog ready in March. Write for your copy now.

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IN THE *Morning Mail..*

[Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Michigan.

Dear Sirs:

Enclosed are several coupons which have my address. I wish to say this method saves the industrial-arts teacher a lot of time and money.

John B. Montgomery,
Freeport, Illinois

Dear Sir:

I just received SCHOOL SHOP again. I say "again" because each time it comes it seems remarkable, as Mr. C. R. Dixon, Director of the Industrial Education Department in Ithaca, N.Y., stated in his last letter to you, that it is "gratis."

As long as I've mentioned Mr. Dixon, I'll say that I'm only slightly disturbed by his statement that "more pepole lose their jobs because of so-called incompatibility than through lack of skill." I believe, however, that Mr. Dixon missed the point of the editorial entirely. This is probably my fault since an editorial should be well-enough written so that the main thought need not be discovered by accident. Nevertheless, if Mr. Dixon will read it again, he will see that it was proposed that the "incompatibility" he speaks of, which often means incompatible attitudes, may result from a lack of skill. On the other hand, the possession of adequate skills should engender a feeling of confidence which ought to result in "better attitudes."

I have written to or talked with certain people asking for the source of their data when they make some such statement as "everybody knows that more people lose their jobs because of bad attitudes or personality factors than because of a lack of skill," and although I know of some studies which might be interpreted strongly in this direction, if one were not particularly critical in his generalizations, still these studies may leave quite a bit to be desired in the way of scientific research.

One gentleman wrote me in answer to my question of "Where did you find out?" that he had heard it from a friend who had read it in an article. Of course, I cannot prove my point statistically either, but I *know* of cases where a lack of skill has led to "wrangling" and "bickering" and bad feelings which even the psychological purist might recognize as the outcropping of personality insufficiencies (bad attitude) on the part of both the worker and the boss. On the other hand I recall from experience in industry that we kept men whose skills were high and paid very little regard to personality traits.

So, dear editor, I maintain that if our capable teachers were allowed to teach skills (of which they have many) to a greater extent to our youth as well as "good attitudes" (which are important but which are so involved in their psychological ramifications that we can't even be sure we can teach them at all with any consistency) then I believe the worth of our young citizens to industry, labor, the community, and our country, as well as to themselves, would be greatly enhanced.

Hugh F. Pierce,
Lecturer in Vocational Education,
University of Michigan, Ann Arbor

Dear Sirs:

Enclosed you will find coupons for instructional materials. Thank you for the opportunity to obtain this material.

Arnold Sanchez,
Compton Senior High School,
Compton, California

C & P NEW SERIES PRESSES These presses in sizes of 8x12, 10x15, 12x18 and 14½x22, provide the student with equipment that furnishes all practical requirements of hand fed press operation. May be equipped with flywheel, belt and platen guards. Also furnished for treadle operation instead of motor drive.

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PRESSES and PAPER CUTTERS

C & P BENCH CUTTER An efficient, small size cutter that handles sheets up to 19"x24". Equipped with two-handed safety control.

The Standard for Printing Education

C & P presses and paper cutters have been standard equipment in commercial plants and schools for over 50 years. So, the selection of C & P equipment for printing classes places before the students *practical* equipment exactly as used in commercial practice in the entire printing industry.

In addition, special safety features are incorporated, when desired, in C & P presses and paper cutters so that all safety requirements are fully satisfied.

For practical instruction—for safety in use—the foresighted administrator recommends . . . Chandler & Price.

"HANDBOOK OF PLATEN PRESSWORK" *is one of the outstanding aids to printing furnished without charge to printing instructors. If you do not have a copy, just request one.*

C & P PILOT PRESS A thoroughly efficient little press, chase 6½x10, that teaches basic principles of press operation with exceptionally fine printing results.

THE CHANDLER & PRICE COMPANY
6000 CARNEGIE AVENUE • CLEVELAND 3, OHIO

Drop-Leaf Lamp . . . *from page* 15

⅜" groove is rabbeted out of the center of each piece to accommodate the fixture cord or wire which is to run through the upright. This column may be placed on the lathe and a dowel turned upon each end.

The plate is next turned out of a piece of stock ⅞" x 8½" in diameter. This, of course, involves face-plate turning. Then two candle cups are turned to receive the candle fixture. A ½" dowel is turned on each candle cup to fasten it to the plate.

To make provision for the fixture wires, bore a ⅜" hole from the outside of the plate to the center. The hole may finally be plugged with matching wood. A disc, ¾" x 2½" in diameter, is turned out and put in place. It serves to conceal the wire connections. This piece also requires chucking.

The stem which supports the shade is turned from material 1¼" x 1¼" x 10". The drawing gives all the details for turning. The shade is held in place with a turned pin. ★

high-quality tools by Greenlee

for accurate shopwork

The minute you take hold of a GREENLEE tool, you can "feel" the fine quality and extra craftsmanship that go into its making. All GREENLEE tools are carefully formed and finished for accuracy and correct cutting edges. All are properly heat-treated for strength and long life.

GREENLEE 22 SOLID-CENTER AUGER BITS bore *accurate* holes smoothly, quickly. Solid-center design gives extra strength and provides fast, positive chip clearance. Every GREENLEE 22 Auger Bit has accurately sized, perfect cutting edges that last through long use. "Plastic Sealed" to reach you factory-sharp. Available in 18 sizes: from 4/16" diameter through **24/16".** Buy singly or in sets . . . in handy plastic rolls, steel boxes, or metal holding panels.

CHISELS, GOUGES, Various types of tang butt, socket butt and firmer chisels. All are carefully balanced, easy to hold. Blades are of selected tool steel that long retains its fine-cutting edge. Green plastic handle provides comfortable, sure grip. Buy singly or in sets. GREENLEE socket gouges available with inside and outside bevels . . . same top quality as all GREENLEE tools.

TOOLS FOR CRAFTSMEN
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The GREENLEE tool line also includes expansive bits, electric drill bits, turning tools, drawknives, and many more. Write for literature. Greenlee Tool Co., 2042 Twelfth St., Rockford, Ill.

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First white glue worthy of the Weldwood name!

WELDWOOD® PRESTO-SET* GLUE

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- Jobs can be machined 30 minutes after gluing!
- Bonds wood, leather, paper, cloth!
- Odorless! Clean to work with!

New! "Does-the-impossible" adhesive!

WELDWOOD CONTACT CEMENT

- Bonds instantly, permanently — *on contact!*
- Bonds any combination of wood, leather, glass, paper, cloth and metal (including aluminum)!
- Bonds Micarta and other laminate without clamps or presses!
- Puts up plywood panels without nails!

"Old Reliable" of professionals!

WELDWOOD PLASTIC RESIN GLUE

- Makes glued joints stronger than the wood itself!
- Jobs can be light-worked in a few hours!
- Mixes quickly and easily with tap water!
- Spreads smoothly and easily!
- Bacteria and rot-proof! Stain-free!

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- ☐ Weldwood Contact Cement
- ☐ Weldwood Plastic Resin Glue

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My regular supplier is_____

*strictly personal

O. H. BEATY, Kansas state supervisor of trade and industrial education since 1945, will succeed HARRY CARMICHAEL as supervisor of trade and industrial education for the state of Iowa when Mr. Carmichael retires June 30. Mr. Beaty is now working with Mr. Carmichael in Des Moines.

LOUISE MOORE, specialist in girls' and women's training for the Trade and Industrial Education Branch, U.S. Office of Education, has retired.

New industrial-arts instructors at State Teachers College, California, Pa., are GASTON LEBOIS, teacher of ceramics, jewelry making, and industrial-arts design; RICHARD W. SHACKELFORD, teacher of woodshop and mechanical drawing; and JOHN R. SWEARINGEN, teacher of fundamentals of machine and advanced machine shop. Mr. Lebois formerly taught at Tri-County Schools, Canton, Pa. Dr. Shackelford was a former teacher at the University of Florida, Gainesville. Mr. Swearingen formerly taught at Brownsville Junior and Senior High School, Brownsville, Pa.

ALEXANDER DUCAT has succeeded JOSEPH SPROULE, retired, as director of vocational education in Troy, N.Y.

HOWARD S. BENNETT, principal of Edison Technical and Industrial High School, and FREDERICK O. E. RAAB, principal of Paul Revere Trade School, both of Rochester, N.Y., have recently retired.

Recent additions to the staff of the industrial-arts department at San Jose State College, Calif., are RALPH C. BOHN, LOUIS MELO, formerly of Stanford University, and JACK CHAPLIN, formerly head of the industrial-arts department of Fremont Union High School, Sunnyvale, Calif.

HARRY E. DAVIS, formerly assistant director, is now director of the Dothan State Vocational Trade School, Ala. He succeeds R. L. TURNER, who resigned to go into the construction business.

LLOYD HOPKINS has succeeded CHARLES BROMLEY, retired, as supervisor of trade and industrial education in Alameda, Calif.

S. JAMES SENES has been named supervisor on the trade and industry staff of the Illinois State Board of Vocational Education.

NORMAN MITBY, formerly of Oshkosh, Wis., is now director of vocational and adult education in Green Bay, Wis.

DAN E. DANIELSON is now director of vocational and adult education in Neenah, Wis.

WALTER H. DREIS, president, treasurer, and general manager of Dreis & Krump Manufacturing Co., Chicago, Ill., died Dec. 8 at the age of 67.

A. J. DEWOLF, formerly vice-president and general sales manager, was elected president and treasurer at a special meeting of the board of directors.

ROBERT W. CAMPBELL was recently appointed to the educational sales department of Stanley Tools, covering the New England states.

JACK REYNOLDS, formerly teacher of industrial arts in Sacramento, Calif., has succeeded ADOLPH W. EHRHORN as supervisor of industrial arts and safety for the Sacramento schools. Mr. Ehrhorn has been named research assistant to the superintendent.

ADOLPH PANITZ, formerly professor of industrial teacher training in the New York State Education Department, is successor to A. OWENS BIERMANN, retired, as principal of Edison Vocational and Technical High School, Mount Vernon, N.Y. ★

Is Safety A Problem?

NOT WITH THE POWERMATIC MODEL E-16" PLANER

THE SAFEST SURFACER EVER DESIGNED!

The Powermatic Model E-16, Belted or Direct Drive Planer is an extremely heavy duty single surfacer, designed for years of trouble free performance. The long life, precision workmanship and low price have made this machine very popular in the Industrial Arts and Vocational Education departments throughout the U.S.A. This machine incorporates features found only in the highest priced planers, yet is priced well within the range of the School Shop budget. The 3¾" cutterhead is equipped with exclusive new "jack screws" for easy adjustment of knives. Never before has the installation of knives been so simplified. Every moving part is completely guarded for safe operation. Extra heavy one piece cast iron base assures perfect alignment. Write for complete information.

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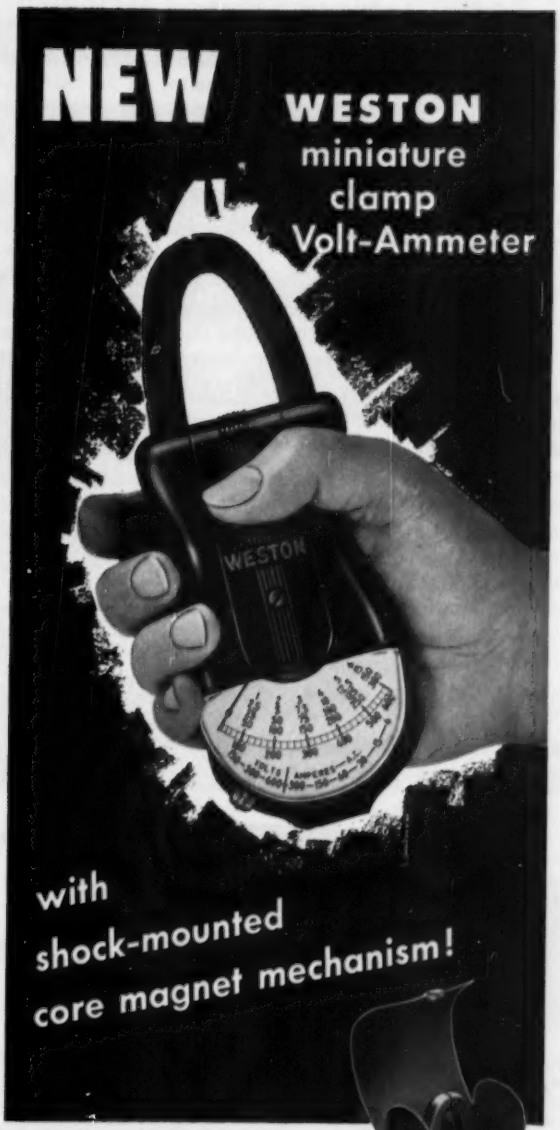
POWERMATIC MACHINE COMPANY • McMinnville, Tennessee

NEW WESTON miniature clamp Volt-Ammeter



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Supplied in this sturdy, scuff-proof case with compartment for voltage test leads.

Lightweight and really pocket size... yet this instrument packs new ruggedness and dependable accuracy. Employs CORMAG® self-shielded mechanism with spring-backed jewels, which is shock-mounted in the sturdy Bakelite case. Window, too, is of shatterproof Plexiglas, wrap-around design. Only one easily read scale for all ranges and functions. Jaws take up to 1" round, or 1¾" rectangular conductors. Ranges—Current: 300/150/60/30/15/6 amperes a-c—Voltage: 600/300/150 volts a-c. At local distributors or write — WESTON Electrical Instrument Corporation, 614 Frelinghuysen Avenue, Newark 5, New Jersey.

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2 BANDSAWS in 1

THE VERSATILE NEW WELLS 49-A

USE IT AS A VERTICAL BANDSAW

No tools required! Just swing head into vertical position — it's ready to use.

In this position, shown at right, your New Wells 49-A is a Utility Upright Bandsaw for vertical cutting of angles, slots, notches, bevels and contour work. Ample power, efficient (3 speed) V-Belt Drive and sturdy construction assure smooth, even cutting at the lowest cost.

USE IT FOR HORIZONTAL CUT-OFF

In this position shown at left, your dual purpose New Wells 49-A becomes an Efficient, Economical Horizontal Cut-Off Saw that will handle "man sized" cut-off jobs in large or small shops. It's an ideal tool for "job-site" work and handy for maintenance or utility work in any school shop.

Simplicity and Portability are outstanding features of this New Wells 49-A — a rugged machine designed and built for long service. The blade (½" x .025" x 5') is driven by a ¼ H.P. 115 volt motor with selective speeds 54, 100 and 190 f.p.m. For horizontal cut-off work, standard equipment includes positive screw type vise and automatic shut-off at the end of each cut.

Write today for complete information on this new combination unit — 2 saws for the price of 1.

Wells saws
Wells

The Pioneer of Horizontal
METAL CUTTING BAND SAWS
WELLS MANUFACTURING CORPORATION
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Diamond Dust

Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.

That Pat on the Back

Tony was a member of the Armed Forces. Since he took his responsibilities as a soldier seriously it is not surprising he was advanced rapidly to P.F.C., and through various other stages to the exalted position of Top Sergeant.

As the leader in his company, one of his responsibilities was to maintain good discipline in his group. Did the men line up promptly and properly? Were they dressed correctly? Were their rifles clean? Did they always add "Sir" to their questions and statements?

Now, maintaining discipline in a group of men who vary greatly in their attitude toward regimentation is a difficult task under any circumstances, but the difficulty is increased tremendously when these men are using their ingenuity to devise methods of "Getting the sergeant's goat."

So Tony found himself in a position in which he found it necessary to develop a system by which he could reward good behavior and penalize those who persisted in departing from the established rules and regulations.

It is true that he was in a position to land a culprit in the hoosegow. He could even bring him before a court where the higher officers would deal out military justice, with all its discomforts. But this would have been an acknowledgement on his part that he lacked the ability to handle his job efficiently. Since he was reluctant to do this, he devised a scheme by which the "YES" man was assigned the pleasant task of chauffeuring the Colonel's lady, while another poor guy was elected to a more or less permanent position on latrine detail.

He discovered, too, that infringements of the rules varied in degree, and that a competent leader realizes that while some misdemeanors demand attention, others had better be ignored. In other words, Tony learned that occasions arise when it is expedient for the leader to look quickly in some other direction.

As Tony attempted to apply this principle it became evident to him that some members of his group were diffident while others were "hard-boiled." Some had to be patted on the back and encouraged, while the only method that others could understand was a good swift kick in the seat of the pants.

When one considers the matter he is apt to conclude that there is some similarity between the job of the teacher and that of the sergeant. It is true that the teacher is not a sergeant. It is equally true that he is not expected to regiment his pupils, nor are his pupils bound by the conditions of compulsory service. But they constitute a group of individuals just as a company of soldiers does.

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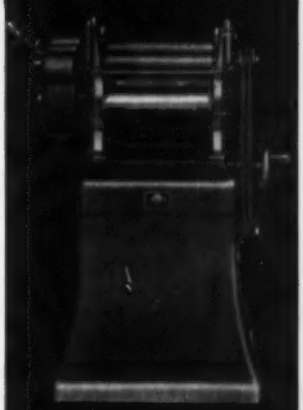

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Books:

General Woodwork Shop. New York: Board of Education of the City of New York, 1955. Pp. 90.

This is a teachers' manual which has been arranged for use in grades 7, 8, and 9. The manual has been prepared to assist the teacher of woodwork in his daily work. While the emphasis has been placed on junior-high school activities, it has distinct application to the woodworking in the senior high school.

The book contains suggested teaching plans which can be modified to fit the conditions prevailing in any classroom. In addition there are many scale drawings of articles to be made of wood.

There is a valuable section on shop management, another on shop safety, and still others dealing with shop guidance and visual aids.

This is primarily a book for teachers, but pupils will find suggestions when they are considering the problem of "what to make."

What To Make and How to Make It. Chicago: Popular Mechanics Press. Pp. 192. $2.50.

This book contains a compilation of interesting and useful projects involving the use of wood, plastics, metal, or electrical equipment.

These projects are arranged under five sections; for the sportsman, the hobbyist, the craftsman, for children, and for the homeowner.

Each project is illustrated by pictures or scale drawings, or both, and the various processes involved are described in detail.

The book should have a place in every school shop library.

Foundry Practices: Rusinoff. Chicago: American Technical Society, 1955. Pp. vii + 261. $6.50.

The fundamentals of foundry practice are presented in this book in a manner that should broaden the understanding of the craft on the part of those who are engaged in the industry. It should serve also as a text for engineering students in technical schools and colleges.

Material is divided into fourteen chapters or sections, each one dealing with a specific unit of the foundry business.

The bibliography and list of stimulating questions at the end of each chapter make the book valuable as an aid to anyone interested in studying the field of metal casting.

S. E. Rusinoff is Professor of Mechanical Engineering, Illinois Institute of Technology.

Auto Repair Manual. Packer et al. Chicago, Ill.: Popular Mechanics Press, 1955. Pp. 160. $2.50.

Written for the fix-it-yourself enthusiast, the book is written in language that can be easily understood and illustrated with many diagrams and photographs. It is edited on the premise that in order to make repairs sensibly, you have to know how things work. Chapters are included on basic automotive principles involved as well as chapters which tell you how to do your own trouble-shooting.

Material has been prepared so that the information will apply to any car—no matter whether it is in the low, medium, or high-priced fields. Information is also included on all of the various automatic transmissions.

How To Make Built-in Furniture. Dal Fabbro. New York: F. W. Dodge Corp., 1955. Pp. 262. $6.95.

This book contains instructions for making over 100 pieces of furniture of the built-in type. These include designs for bookshelves, desks, cabinets, closets, and many other items suitable for the modern home.

Instructions are given in a step-by-step manner, and illustrations show clearly the various parts and how they are fitted together.

Designs will provide the skilled craftsman with worthwhile ideas, but the greatest value of the book will be to the do-it-yourself enthusiast who has a desire to beautify his home.

Mario Dal Fabbro is recognized as an expert in the designing of contemporary furniture, and many of his designs have been acclaimed at international furniture exhibitions. He has written several books on furniture design which have been published in Italy. He is now engaged in designing furniture for American manufacturers.

Do It Yourself Materials Guide. Hicks. New York: Popular Mechanics Press, 1955. Pp. 160. $3.50.

This is primarily a reference book which has been designed as a guide to most of the materials used in building today. From it the reader may learn the advantages and disadvantages of one material as compared with another, and which material is best for any specific job.

The book is a manual of information which should be helpful to the experienced craftsman as well as to those whose interest in building is avocational.

Clifford B. Hicks is an associate editor of *Popular Mechanics* magazine.

Pamphlets:

TV Servicing Timesavers is a booklet which utilizes photographs and drawings to illustrate suggested timesaving tips. It contains 124 pages and the price is $1.50. Contact Howard W. Sams & Co., Inc., 2201 E. 46th St., Indianapolis 5, Ind.

Community Surveys for Educational Purposes is a handbook of suggested techniques for conducting community occupational surveys and follow-up studies. Price is $1 and it can be supplied in quantity. Write the Industrial

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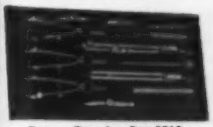

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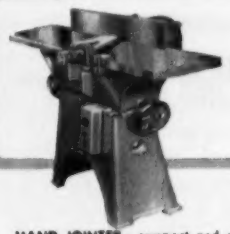

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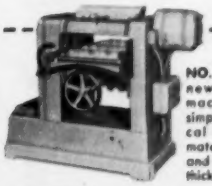

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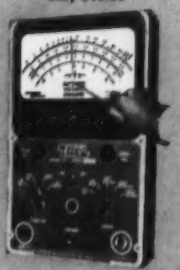

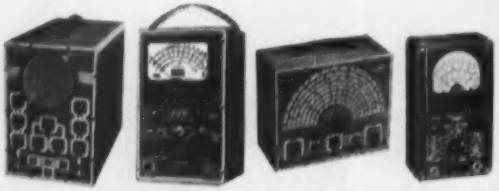

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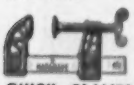

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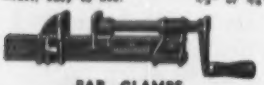

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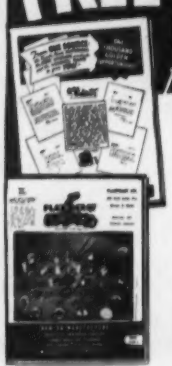

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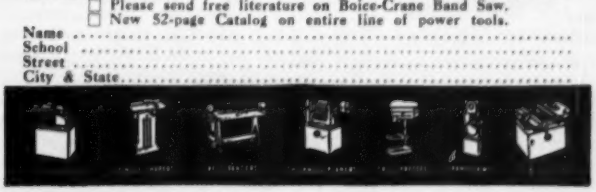

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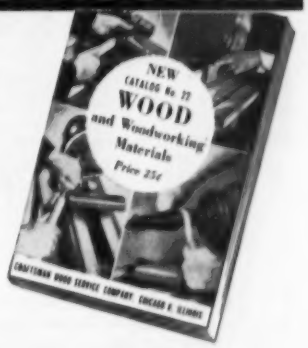

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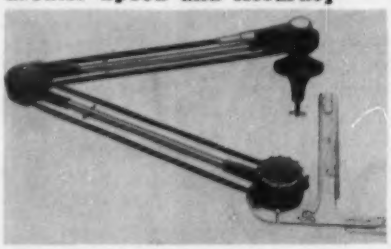
news from Industry

(Circle the numbers on the card in this issue to secure the items listed.)

VEMCO Drafting Machine Offers Greater Speed and Accuracy



The new VEMCO drafting machine announced by V. & E. Manufacturing Co. incorporates operational features which make for greater speed, accuracy in drafting, and ease of handling.

The new machine combines in a single unit all useful features of the older individually-used drafting accessories: a T-square, 45° triangle, 60° and 30° triangle precision mechanical protractor and scales.

A feature of the product is the coin-slotted brake, a new type of brake adjustment which requires less frequent adjustment. The company points out that better performance is due to a greater braking area than is found in other drafting machines.

The new VEMCO unit comes in both a standard drafting machine model for mechanical drawing and general all-around drafting, and a civil engineer's machine for extreme accuracy in map making.

For more information write V. & E. Manufacturing Co., Pasadena, Calif., mentioning SCHOOL SHOP; or *circle no. F-1 on the business-reply card.*

Jiffon Enamel Is Quick Drying

Jiffon is the name of a new quick-drying plastic enamel which is said to eliminate the long drying time necessary with ordinary enamels. According to the manufacturer, anything painted with Jiffon will dry in 10 minutes and be ready for use in 30 minutes.

It can be brushed, dipped, or sprayed, and it can be used on wood, metal, leather, and glass. It is available in eight colors that can be mixed for pastel shades.

Jiff-off, sold jointly with Jiffon, is a solvent and thinner.

For more information write Quik-Dri Products, Inc., 846 Farmington Ave., West Hartford 7, Conn., mentioning SCHOOL SHOP; or *circle no. F-2 on the business-reply card.*

Hickok Multimeter Protected Against Accidental Burnouts

Hickok Electrical Instrument Co. announces that its new portable multimeter incorporates the greatest achievement in VOM history. It features a new technique that protects both meter and the entire internal circuit against accidental burnouts.

Any voltage may be applied directly across any function, including ohms, the company states, without any danger to the meter movement or associated components. In the event that a dangerous overload is applied, the instrument disconnects itself and raises a reset button on the case.

The new multimeter is available in two models. The Industrial Model 455 has a sensitivity of 20,000 ohms per volt ac or dc. Audio Model 456 has a sensitivity of 20,000 ohms per volt dc and 1000 ohms per volt ac. Model 456 also includes DB ranges and has provisions for output measurements. Both models incorporate a full-wave bridge-type rectifier circuit.

The batteries are housed in a special compartment which is accessible without removing the molded case. No soldering is required; the batteries snap in and out with ease.

For more information write Hickok Electrical Instrument Company, 10686 Dupont Ave., Cleveland 8, Ohio, mentioning SCHOOL SHOP; *or circle no. F-3 on the business-reply card.*

Clamp Contains Nut Which Thinks for Itself

Wilton Tool Company has introduced its first line of automatic C-clamps. Named the "Rapid Titan," when disengaged, the clamp spindle is free to slide back and forth along its entire length, the company has announced. At any point, the clamp spindle can be brought into positive contact with the nut merely by rotating the handle clockwise. When engaged, tightening action can be continued through the entire length of the screw.

The Rapid Titan nut is a whole steel nut matched with a fully threaded spindle; there are no moving parts to wear out. The clamps, which are made from Hi-tensile Ductile Alloy and are guaranteed unconditionally for three years, are available in six sizes from 2 to 12.

OLIVER Saw Benches are built to make easy work of hard cuts

No. 270 is a compact medium size machine

This sturdy Oliver is known in industry for its accurate ripping, cross-cutting, dadoing and mitering. Saw arbor tilts up to 45°. Gauges and table are graduated to cut a perfect miter, cut off to length, or rip to width accurately — no delays for checking measurements. Rips to 16" wide to left of saw, 29" to right. Cross cuts up to 16" wide, 3" thick. Write for Bulletin No. 270.

No. 232 is smaller . . . a favorite in school shops

This compact Saw Bench rips, cross cuts, dadoes, miters with ease and accuracy. Saw arbor tilts up to 45°. Has automatic anti-kick back catch for safety. Gauges and table are accurately graduated. Write for Bulletin 232.

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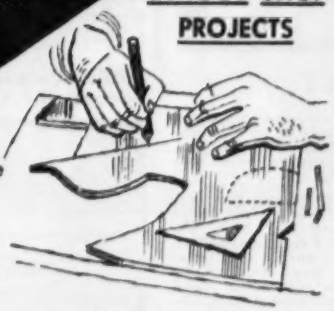

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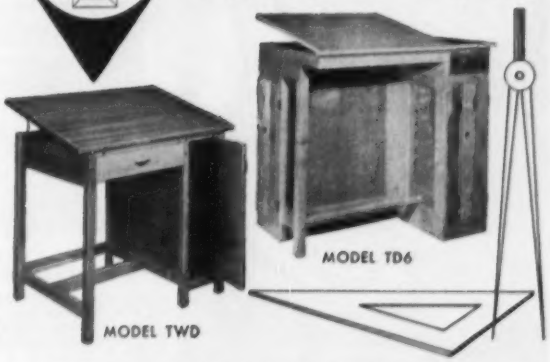
TOLCO DRAFTING and DRAWING TABLES



Your Drafting Room or Art Department will be better equipped when you specify PRECISION BUILT TOLCO units. The many different Tolco models are built and finished to give years of maintenance free service. Northern Hard Maple frames—bolt reinforced mortised and tenoned joints—adjustable warp free work surfaces. There is a Tolco unit just right for your school and budget.

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MODEL OL-1 $29.50
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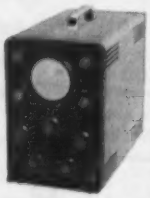

Heathkit manuals provide step-by-step assembly instructions, pictorial diagrams, schematic diagrams, information on color codes, on soldering, and regarding tools. High quality parts supplied in every kit.

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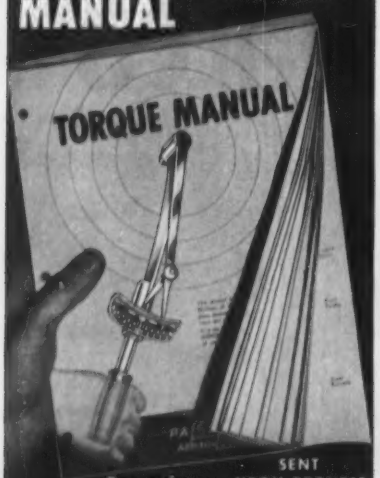

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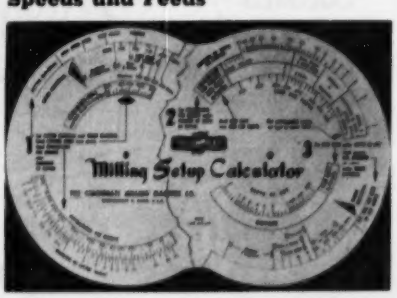
For more information concerning this and other Wilton Clamps and Vises write Dept. RC, Wilton Tool Mfg. Co., Inc., Schiller Park, Ill., mentioning SCHOOL SHOP; or *circle no. F-4 on the business-reply card.*

Small Grinder Meets Demand for Light Work

A new addition to the Besly Grinder line is the No. 318-18" Bench Model Grinder which is designed around a compact, pancake type of motor for free-hand grinding of castings, forgings, stampings, plastics, etc., where little stock removal is required, the manufacturer states.

The grinder can be mounted on a bench or a stand of suitable height. Dressing of the abrasive disc is accomplished by removing a section in the guard rail and swinging the dresser arm across the face of the abrasive. All grinding is done in the horizontal plane, resulting in easier handling, greater production and safer operation. The rugged and simplified design of this machine, according to company officials, makes it an ideal installation for producing ground surfaces. For more information write Besly-Welles Corp., Beloit, Wis., mentioning SCHOOL SHOP; or *circle no. F-5 on the business-reply card.*

Milling Calculator Selects Optimum Speeds and Feeds



A new milling calculator which serves a dual purpose has been developed by The Cincinnati Milling Machine Co.

One side of the calculator, the company states, is used to determine spindle speeds and feed rates which are adequate for toolroom operations, job-lot milling or short production runs. On the other side of the calculator, entitled "Economic Cutting Speed," a modified cutting speed can be determined which will give the minimum cost per piece for high-production milling jobs. It is made of plastic and measures approximately 5" x 8". For more information write The Cincinnati Milling Ma-

chine Co., Cincinnati 9, Ohio, mentioning SCHOOL SHOP; or *circle no. F-6 on the business-reply card.*

"Ruby Line" Screwdrivers Announced

Proto has announced the addition of a new line of 37 Proto screwdrivers which have bright ruby-red handles of fire-resistant plastic. A special handle design makes possible a powerful, yet comfortable grip, the company has said.

Blades are made of high-grade steel and heat-treated for proper hardness and toughness, fully plated for rust protection. The 37 models include keystone, cabinet, and Phillips-type screwdrivers, all conforming to military specification GGG-S-121-C. For more information write Plomb Tool Company, 2109 Santa Fe, Los Angeles, Calif., mentioning SCHOOL SHOP; or *circle no. F-7 on the business-reply card.*

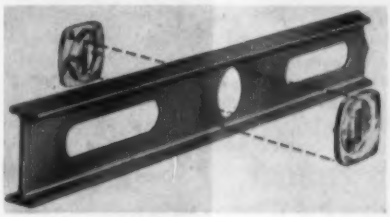
Welding Table Features Safety

Recently introduced, this completely equipped welding table features safety, efficiency, and economy, the manufacturer states. The table is constructed of steel with an upright partition, consisting of two ¼" asbestos panels, between its two working surfaces. Regulators, station valves and gas-supply headers are mounted on the top. Gas hose from the regulators runs between the asbestos panels to gas Economizers positioned on the two working surfaces. Each working surface accommodates 14 firebricks, 2½" x 4½" x 9".

The table is designed so that two or more can be connected together in rows and served from a common gas supply. The supply may be single cylinders or a piping system served by a cylinder manifold. Floor area required for one basic table unit is 36⅞" x 40¼".

More information on these welding tables may be obtained by writing the National Cylinder Gas Company, 840 N. Michigan Ave., Chicago 11, Ill., mentioning SCHOOL SHOP; or *by circling no. F-8 on the business-reply card.*

Four New Magnesium Levels Introduced by Columbian Vise



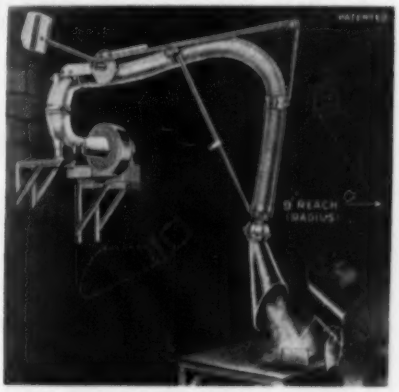
Four new magnesium levels, said to be one-third lighter than aluminum levels of the same lengths, were recently introduced by The Columbian Vise & Mfg. Co.

Available in 24", 48", 72", and 96" lengths, the new levels are made of strong extruded magnesium I-beams and are said to be virtually unbreakable. Edges and sides are smooth, accurate, and 100 percent true. The levels are unaffected by heat, cold, and moisture.

The new levels feature adjustable, replaceable vials. Attached to the frame from two standard screws, each vial assembly can be loosened, tightened, or taken out. In case of accident, a single damaged vial can be removed without disturbing its companion.

For more information write Columbian Vise & Mfg. Co., Cleveland 4, Ohio, mentioning SCHOOL SHOP; or *circle no. F-9 on the business-reply card.*

Unit Collects Fumes at the Source



Collecting and drawing fumes and heat away at its source by the use of high velocity exhaust hoods, the Ruemelin Welding Fume Collector takes away the health hazard of gas fumes resulting from electric-arc and gas-welding operations, the company has announced.

The cone hood may be placed 18" diagonally above the arc, and fumes and smoke do not escape to the general shop atmosphere. The inlet hood can be easily placed in any desired welding area and stays in position auto-

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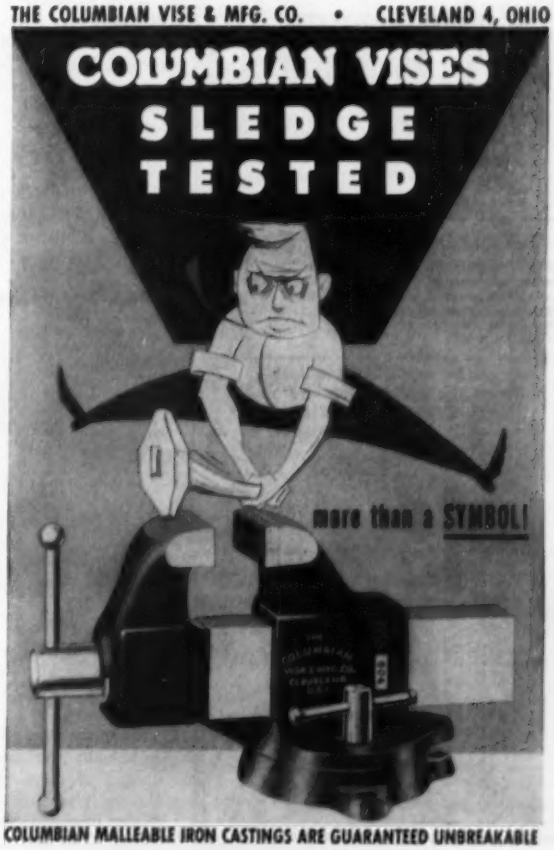

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matically. The standard unit operates on 9 ft. maximum radius. Insulating material is used in the construction of the hood to avoid grounding or short circuit when accidentally contacted by electrodes. For more information write Ruemelin Mfg. Co., 3860 N. Palmer St., Milwaukee 12, Wis., mentioning SCHOOL SHOP; or *circle no. F10 on the business-reply card.*

Iron Art Made Easily with Formit Tools

According to the manufacturer, iron household articles such as candelabra, magazine racks, lamps, garden fences, table legs, etc., may be formed easily with Formit Tools. Material is cold-formed and parts are joined together by squeeze-riveting. The material used is easily cut with a hack saw and work may be painted black or any color you prefer. For more information write West End Iron Works, P.O. Box 5061, Albany, N. Y., mentioning SCHOOL SHOP; or *circle no. F-11 on the business-reply card.*

New P & C Pliers Grips Protect Your Hands

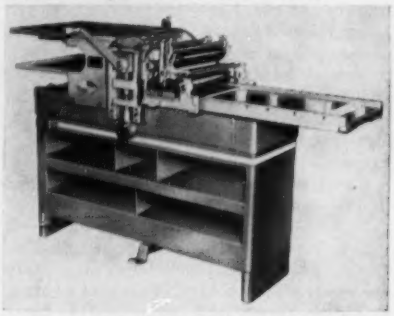
Made of resilient plastic, these new grips fit snugly over pliers handles to provide a more comfortable grip and protect your hands and prevent blisters. The plastic resists wear and damage, is unaffected by oil and grease, the company has said. They are packaged in pairs in cellophane bags and come in three sizes that fit practically all pliers on the market. More information may be obtained from P & C Handeze Pliers Grips by writing P & C Tool Co., Box 5926, Portland 22, Ore., mentioning SCHOOL SHOP; or *by circling no. F-12 on the business-reply card.*

Glass Scratches Removed Easily

Manufacturers of the Model DA Dual Action Easy Sander claim that this sander is ideal for working fiberglass and removing scratches in windshields, TV-picture tubes, and other glass.

On glass, they state, the unique action develops only a mild surface heat, eliminating the danger of discoloration and glass breakage. On fiberglass, results are effective, the Dual Action producing very little dust, with abrasive life up to 80 percent longer. The sander is also recommended by the company for all jobs of sanding, buffing, and polishing, and also for grinding welds. For additional information write the Detroit Surfacing Machine Company, 1333 East Eight Mile Road, Detroit 20, Mich., mentioning SCHOOL SHOP; or *circle no. F-13 on the business-reply card.*

New Design in a Proof Press



A new series GP Challenge Proof Press offers the important advantages of "cylinder press" operation with improved proofing stability, the company has stated.

A one-piece side frame and heavy reciprocating bed on a heavy base provides solid foundation for unyielding impressions. The press offers precision ground antifriction rollers, scientifically spaced to ride smoothly on wide tracks which are aligned close to the center of the bed.

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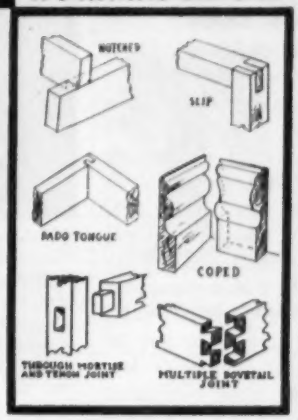

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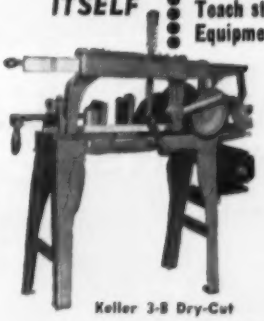

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the press. Another convenience is the Challenge "tip-out" rollers which enable the operator to wash-up the assembly without removing rollers from the machine. The press accommodates all forms up to 14½" x 23½". More information about this press may be obtained by writing Challenge Machinery Co., Grand Haven, Michigan, mentioning SCHOOL SHOP; or *by circling F-14 on the business-reply card.*

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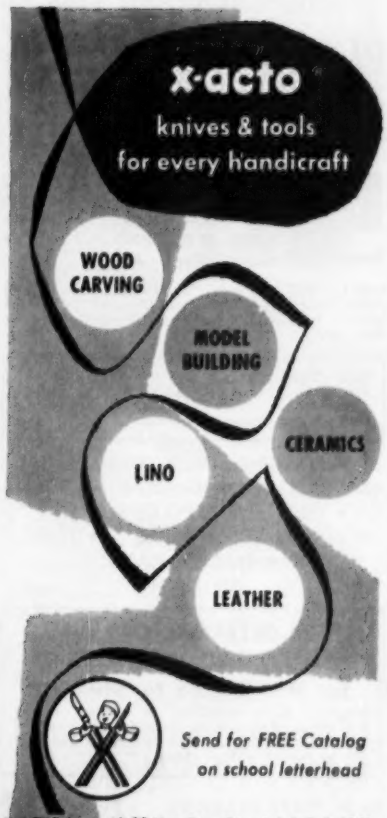
Allen Power-Tune Course for Modern Engine Servicing is the title of a manual which contains information on the servicing of 12-v electrical systems in cars, trucks, and tractors, plus details on the use of latest testing and servicing equipment necessary in modern engine tuneup. For a copy of the manual write Allen Electric and Equipment Company, 2101 N. Pitcher St., Kalamazoo, Mich., mentioning SCHOOL SHOP; or *circle no. F-20 on the business-reply card.*



Washington . . . *from page 56*

program; getting and keeping good teachers; properly financing school buildings and operating schools *and* a school district organization which is large enough to provide good educational leadership, skilled teachers, and adequate facilities."

Next, the local school district still has a lot to do to insure an ample income for the schools. Local school authorities should see that all taxable property is kept on tax rolls; that property values are reappraised; that legal restrictions on borrowing are eased or removed where necessary. Such steps, the delegates declared, would keep dollars flowing for school purposes.

A third task for the local administrator and board member is to set up conditions which will attract and keep teachers in the profession. The salary structure must be high enough and flexible enough to compete effectively with other fields bidding for quality manpower. But, in addition, the prestige and status of teaching must be raised. And equally important, school administrators must somehow relieve teachers of pesky nonteaching duties, whether keeping records, collecting milk money, or doing corridor duty. (*Continued on next page*)

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Ease the Obstacles.—What the state can and should be doing for the public schools was very much on the minds of the delegates. As they saw it, the big thing is to reexamine each state's constitution and laws to see whether they hamper borrowing and taxing for school purposes. The delegates reported instance after instance where such obstacles do exist. Away with them, or at least ease them, the delegates demanded. In a ringing conclusion on how to pay for schools, the delegates agreed: "The problem of financing our schools is not lack of capacity to support education adequately. The problem is national determination to apply enough of our available resources to the job. The people of America need urgently to reexamine the allocation of tax funds at all levels of government. The destiny of our children and our free society demands that we use more of our wealth for education."

In addition to increasing its portion of aid for local school districts, the state must also "provide dynamic leadership," the Conference said. Spelled out, this means a strong state department of education: one with sufficient staff to advise and counsel local boards of education on financial planning, on curriculum development, and on building safe and adequate school buildings. (Incidentally, the Conference took the time to list the "basic and desirable" facilities for a high school and included in that list "special classrooms for industrial arts and for vocational education." This was one of two or three rare references to practical education.) The delegates also set up as an objective a state department of education which can initiate and develop special services, such as programs for the gifted, for the handicapped, and for those who want to go from school to full-time work on the farm or in the shop or business office. But there was no total agreement on how far the state should go. For example, several of the round tables (as is well known, the 1800 delegates worked around 180 tables, each

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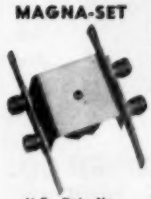

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with a chairman; in turn these chairmen consolidated the individual table reports around 15 to 16 "supertables") proposed that the state shall provide for its public schools "those desirable services over, above, and beyond the capabilities of the local district to provide the basic program." Eight of the 15 superchairmen disfavored this statement and seven reported the question had not come up for discussion at their particular roundtables.

The Ideal Balance.—Balance was the *leit motif* of the Conference. Balance responsibility between local, state, and federal governments, the delegates declared at roundtable after roundtable. They saw the need for balance not only in paying for schools, but in such tasks as recruiting teachers and in building good will for public education through public relations. And carrying this theme down to the individual school, the delegates declared: "In each school an appropriate balance must be maintained in the educational program to insure wholesome, all-around development of the individual with provision for the stimulation and development of the useful talents of all children, including the retarded, average, and gifted children."

Such, in brief, is the story of history's largest town meeting on education. Whether that story will bring action depends only in part on Washington. The greater role belongs to the people.

The Crystal Ball.—It was at the very scene of the White House Conference that we were able to pull aside the busy chief of the federal trade and industrial education branch, John Walsh, for a long talk. Since the year was drawing to an end, it seemed an appropriate time to look before and after, and to examine the trends in industrial education. Here are some of the questions we asked and the answers (edited to meet space limitations) we received:

Reporter: With the new year about to begin, what is uppermost on your mind?

Mr. Walsh: I suppose it's the same things that must be uppermost on the minds of us all who are concerned with vocational education. They are the changes taking place in our population, in our work force, and in industry, and the challenges these changes present for trade and industrial education.

Reporter: How would you sum up these changes and these challenges?

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As far as technology is concerned, we are moving toward a time when we shall need in the labor force fewer people with a strong back and more people with a strong mind and skilled hand.

Reporter: Is there scientific evidence to support these predictions?

Mr. Walsh: I think we can depend on the carefully prepared reports of the U. S. Department of Labor for our evidence. On population and labor-force trends, I find especially helpful the studies of Dr. Seymour Wolfbein, of the Bureau of Labor Statistics. And the constant stream of literature about automation gives ample evidence that the job of the future will belong to the person with skill rather than with brawn. In this connection, I'd recommend for every T & I person the report on the Congressional hearings on automation and technological change that were held in October. I believe copies are now available from the Superintendent of Documents. (Reporter's note: They are and the price is $2.)

Reporter: What does all this imply for industrial education?

Mr. Walsh: First, that we should examine and keep reexamining our work in the light of the facts as they appear; and second, that we have the immediate task of extending and expanding our programs of training technicians.

As far as the Office of Education is concerned, it means we should do everything to promote the training of technicians by removing any obstacles, however minor, that stand in the way. At present, some states and local communities have reported difficulties in setting up technical training programs.

Reporter: What kind of difficulties?

Mr. Walsh: The kind that grow out when policy does not keep pace with change. The original vocational education program and policy was based on the concept that one becomes a skilled workman by acquiring a good deal of practice and a lesser amount of theory. Now, that does not hold true with regard to technicians. For one thing, the technician in training needs substantial amounts of related subject instruction. Further, in technical education it is somewhat difficult to decide the value of three consecutive hours of work—in fact, it's hard to decide exactly what is practical work and what is not practical. All this implies that Policy Bulletin No. 1 may have to be revised insofar as that section is concerned.

Reporter: What other demands besides training of technicians will the new technology make on public education?

Mr. Walsh: Let me repeat for you

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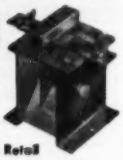

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what I've already said elsewhere. The first demand on public education is most likely to be for part-time and evening extension programs to help in retraining employes who would be displaced by technological advances. The operative and assembly-type job is likely to be affected first. Now, mechanical apprentices and journeymen in industry will probably need and want related instruction with more emphasis on electronics, hydraulics, pneumatics, mechanical movements, and automated controls. We can also foresee that the greatly increased need for technicians and "programmers" should create a demand for more and better local post-high-school technical programs. Of course, all this is my opinion, even though it is a carefully corroborated opinion. What is needed is research.

Reporter: What are the immediate plans in that area?

Mr. Walsh: The Trade and Industrial Education Branch of the Office of Education is all set to start research on the subject of greatest interest and apparently first priority for people in the states and local communities—that is, the impact of the advancing technology on trade and industrial education. We propose to conduct this research with the help of colleges, universities, and state departments of education. To me and to my colleagues this venture into cooperative research is an important step. When we look to the future we must be fortified with facts, trend information, and tested techniques. Only then can we be properly prepared to invent and to build the kind of industrial-education programs that will adequately meet tomorrow's needs.

Reporter: Now that we've looked ahead, let's look back a bit. You haven't been on the job for quite a year. In that short space of time, what do you consider the most important project of your branch?

Mr. Walsh: The leadership development conference held at Fort Collins, Colorado, still strikes me as the kind of activity that pays off. We must all be concerned with developing young leadership, which is what the Ft. Collins meeting was all about. And I'm glad to say that similar leadership development conferences are being carried on—and soon more will be developed. Research facts, policy, curriculum, new training emphases—all these are important. But you can't have these unless you first have that other priceless ingredient—leadership. ★

Cartoon submitted by student Frank Mannarino, Mansfield Junior High School, Tucson, Ariz.

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from Washington

by Michael Paca

Rx for Ailing Schools.—Read the report of the White House Conference on Education and you will find in it a hundred tasks assigned to local and state governments for each task assigned to the federal government. The inclination of the 1800 delegates who came to Washington was such that they readily agreed where the remedy for the schools' headaches must come from in the first place. That source, they agreed, is the local government. They agreed, too, that the state government must also have a hand in fixing the prescription to relieve the schools' ills. Finally, they prescribed two major actions for the federal government:

First, was "greater participation by the federal government in financial support." The delegates meant that they wanted Congress to enact a bill to help pay for the construction of school buildings in those states where help is needed. They were evenly divided on whether Congress should also give money for operating the schools and for paying teachers' salaries. While vocational education did not come up directly, it might be presumed that a similar 50-50 split of opinion would also have taken place on that question. This is mere conjecture, of course, based on the delegates' attitude toward general federal aid.

The second assignment for the federal government was to strengthen the U.S. Office of Education. Said the delegates: "The U.S. Office of Education should be adequately staffed to perform the functions it is now performing in making reports on the progress of education throughout the nation, in carrying on essential research activities, and for providing promptly needed statistical information."

For the sake of completeness, it should be mentioned that the Conference also called on the federal government to continue its aid to war-impacted areas and to see that federal properties, now tax-exempt, bear their fair share of taxes.

The delegates took occasion to say, in addition, that Uncle Sam should never bypass the state office in dealing with local school officials. In the words of the Conference: "The contact of the federal government should be confined to state-level contacts and not made directly with local boards except as mutually agreed by three levels."

Tighten the Machinery.—For each of these federal responsibilities, the conference listed scores upon scores of state and local responsibilities. We shall not attempt to summarize even half of them. However, half a dozen points will tell the story.

First, it appeared to the delegates that many of the schools' troubles come about because school districts are poorly organized. They are either too big or too small. The elementary schools are frequently under one school board, the high school under another. School districts in rags frequently operate next to school districts in riches. What is needed, the delegates said, is a school district which serves a well-defined community—one which has resources and pupils enough to offer a comprehensive program of elementary and secondary education. And the entire public-school system of a district should be under one school board. In short, tighten up the machinery, and many of your troubles will go, the Conference told local school authorities. As the delegates put it: "There is a high correlation between a good educational

(*Continued on page* 51)

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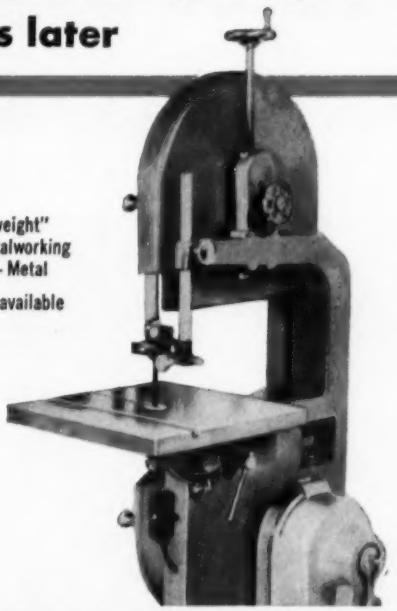

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